Janata Shikshan Prasarak Mandal's

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Self Study Report (1st Cycle)

Criteria-II

Teaching -Learning and Evaluation

Key Indicator: 2.6
Student Performance and Learning Outcome

Submitted to

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

BENGALURU

Janata Shikshan Prasarak Mandal's
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Declaration

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ID.NO. PU/AN/ACS/ 124/2012
Dahigaon-ne,Tal-Shevgaon

I/C Principal
Loknete Marutrao Ghule Patil Mahavidyalaya
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Programme Outcomes

(POs)

and

Course Outcomes

(Cos)

2021-22

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website.

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Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of English

PROGRAMME: B.A. ENGLISH	
Programme Outcomes	PO-1. Demonstrate an attitude of service and commitment to social Change
	PO-2. Educate students in both the artistry and utility of the English languagethrough the study of literature.
	PO-3. Develop proficiency among students in oral and written communication
	PO-4. Make students able to apply critical and theoretical approaches to the reading and analysis of literary and cultural texts in multiple genres.
	PO-5. Develop creative ability among students.
Program Specific Outcomes	PSO-1. Understand the values of literature in life.
	PSO-2. Appreciate the literary works
	PSO-3. Know the literary theories, terms and concepts in Criticism.
	PSO-4. Attempt creative writings.
	PSO-5. Know phonological and morphological aspects of English.
	PSO-6. Use English effectively in formal and informal situations.
Course Outcomes F.Y.B.A. (CBCS-2019)	
Compulsory English	CO-1. Students are familiarized students with excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English
	Co-2. Students are exposed them to native cultural experiences and situations in order to develop humane values and social awareness
	Co-3. Development of overall linguistic competence and communicative skills of the students
Optional English (General Paper-I)	CO-1. Students are exposed to the basics of literature and language
	CO-2. Students are familiarized with different types of literature in English, the literary devices and terms so that they understand the literary merit, beauty and creative use of language
	CO-3. Students are exposed the basic units of language so that they become aware of the technical aspects and their practical usage
	CO-4. Students are prepared for a detailed study and understanding of literature and language
	CO-5. Development of an integrated view about language and literature.
S.Y.B.A. (CBCS-2019)	
	CO-1. To develop language competency among the students for self- Learning

Compulsory English (Core Course-CC)	CO-2 Familiarize the students with the excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English
	CO-3. Develop students' interest in reading literary pieces
	CO-4. Expose students to native cultural experiences and situations in order to develop values and social awareness
	CO-5. Develop overall linguistic competence and communication skills
Skill Enhancement Course (SEC-1A) (Linguistics)	CO-1. To familiarize the students with some advanced units of language so thatthey become aware of the technical aspects and practical usage.
	CO-2. To prepare students for the detailed study and understanding of different aspects and branches of language.
	CO-3. Make students able to use English sounds in isolation and in connected speech effectively.
	CO-4. Make students able to apply linguistic competence in their daily communication.
	CO-5. Improve the written communication of students through understanding of different syntactical elements and structures.
	CO-6. Develop students' integrated view about language and literature
Discipline Specific Course (DSC-1A) (Appreciating Drama)	CO-1. To familiarize the students with the terminology in Drama
	CO-2. To encourage the students to study a few sample masterpieces of English Drama from different parts of the world.
	CO-3. Develop interest among the students to appreciate and analyse drama independently
	CO-4. Enhance students' awareness in the aesthetics of Drama.
Discipline Specific Course (DSC-2A) (Appreciating Poetry)	CO-1. To familiarize the students with different terms in poetry
	CO-2. To encourage the students to study a few sample masterpieces of English poetry
	CO-3. Enhance students' awareness in the aesthetics of poetry and toempower them to read, appreciate and critically evaluate poetry independently.
Skill Enhancement Course (SEC-2A) (Communication Skills)	CO-1. To make students communicate effectively in different contexts
	CO-2. To enable the students to differentiate between verbal and non-verbal communication
	CO-3. To encourage the students to use soft skills in daily communication

	CO-4. Develop interest among the students to use technology for effective communication
	CO-5. Develop overall linguistic competence and communication skills
T.Y.B.A. (Pattern Regular-2019)	
Compulsory English (Core Course-CC)	CO-1. a) To familiarize students with some excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English.
	CO-2 b) To enable students to become competent and effective users of English in real life situations.
	CO-3.c) To contribute to the overall personality development of the students.
	CO-4. d) To instill humanitarian values and foster sympathetic attitude in the students.
	CO-5. e) To train the students in practical writing skills required in work environment.
	CO-6 f) To impart knowledge of some essential soft skills to enhance their employability.
Skill Enhancement Course (SEC 1-C & SEC 1-D) (Enhancing Employability Skills)	CO-1. To get the awareness of career opportunities available to them.
	CO-2. To identify the career opportunities suitable to them.
	CO-3. To understand the use of English in different careers.
	CO-4. To develop competence in using English for the career oftheir choice.
	CO-5. To enhance skills required for their placement.
	CO-6. To use English effectively in the career of their choice
	CO-7. To exercise verbal as well as nonverbal communication effectively for their career.
Discipline Specific Course (DSE-1C& DSE-1D) (Appreciating Novel)	CO-1. To introduce students to the basics of novel as a literary form
	CO-2. To expose students to the historical development and nature of novel
	CO-3. To make students aware of different types and aspects of novel
	CO-4. To develop literary sensibility and sense of cultural diversity in students
	CO-5. To expose students to some of the best examples of novel
	CO-1. To introduce students to the basics of literary criticism

Discipline Specific Course (DSE-2C & DSE-2D) (Introduction to Literary Criticism)	CO-2. To make them aware of the nature and historical development of criticism
	CO-3. To make them familiar with the significant critical approaches and terms
	CO-4. To encourage students to interpret literary works in the light of the critical approaches
	CO-5. To develop aptitude for critical analysis
Skill Enhancement Course (SEC 2-C & SEC 2-D) (Mastering Life Skills and Life Values)	CO-1. To equip the students with the social skills
	CO-2. To train the students interpersonal skills
	CO-3. To build self-confidence and communicate effectively
	CO-4. To Encourage the students to think critically
	CO-5. To learn stress management and positive thinking
	CO-6. To enhance leadership qualities.
	CO-7. To aware the students about universal human values
	CO-8. To develop overall personality of the students to make students communicate effectively in different contexts
F.Y.B.Com. (CBCS-2019)	
Compulsory English	CO-1. Students are familiarized with good pieces of prose and poetry so that they realize the beauty and communicative power of English
	CO-2. Students are exposed to the native cultural experiences and situations so that they understand the importance and utility of English language
	CO-3. To develop overall linguistic competence and communicative skills among the students
	CO-4. To develop oral and written communicative skills among the students so that their employability enhances and English becomes the medium of their livelihood and personality
S.Y.B.Sc. (CBCS-2019)	
English	CO-1. To offer students good pieces of prose and poetry so that they realize the beauty and communicative power of English.
	CO-2. To expose them to native cultural experiences and situations so that they understand the importance and utility of English language.
	CO-3. To develop oral and written interview skills among the students so that English becomes the medium of their livelihood.
	CO-4. To develop soft skills among the students to increase employability and create multi-dimensional personality.

Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Marathi

PROGRAMME: B.A. MARATHI

अभ्यासक्रमाची गृहितके	राष्ट्रीय शैक्षणिक धोरणांची उद्दिष्टे प्रत्यक्षात आणताना, विद्यार्थीकेंद्री, आंतरविद्याशाखीय, रोजगाराभिमुख, कौशल्याधिष्ठित असे भाषा व साहित्याचे अभ्यासक्रम अनुसरणे, निर्माण करणे आवश्यक आहे. तसेच जीवन कौशल्य विकासासाठी भाषा, साहित्य, कला ही माध्यमे अधिक परिणामकारकतेने समजावूनन घेणे आवश्यक झाले आहे. साहित्यिकक्षमता, भाषिकक्षमता वाढीसाठी, जीवनाच्या आकलनासाठी आणि प्रगल्भतेसाठी विद्यार्थी सिद्ध करणे, ही आजची गरज बनली आहे.
अभ्यासक्रमाची उद्दिष्टे	१. मराठी भाषा, मराठी साहित्य आणि मराठी संस्कृती यांचे अध्ययन करणे.
	२. साहित्यविषयक आकलन,आस्वाद आणि मूल्यमापनक्षमता विकसित करणे
	३. साहित्याभ्यासातून जीवनविषयक समज विकसित करणे.
	४. मराठी भाषेची उपयोजनात्मक कौशल्य विकसित करणे.
COURSE OUTCOMES	
F.Y.B.A. (Choice Based Credit System)	
F.Y.B.A. **General Marathi - (G-1)**	**पहिले सत्र**
	[CC-1 A)
	१. कथा या साहित्यप्रकाराची ओळख करून देणे.
	२. कथा या साहित्यप्रकाराचे स्वरूप,घटक आणि प्रकार यांची ओळख करून देणे
	३. विविध साहित्यप्रवाहामधील कथा या साहित्यप्रकारातील निवडक कथाचे अध्ययन करणे
	४. भाषिक कौशल्यविकास करणे.
	दुसरे सत्र विषयाचे नाव : मराठी साहित्य:कथा आणि भाषिक कौशल्यविकास
	१. एकांकिका या साहित्यप्रकाराची ओळख करून देणे.
	२. एकांकिका या साहित्यप्रकाराचे स्वरूप, घटक आणि प्रकार यांची ओळख करून देणे.
	३. मराठी साहित्यातील निवडक एकांकिकाचे अध्ययन करणे.
	४. भाषिक कौशल्यविकास करणे.
	विषयाचे नाव : मराठी साहित्य : एकांकिका आणि भाषिक कौशल्यविकास [CC-1 A)
S.Y.B.A. **General Marathi -(G-2)**	**पहिले सत्र**
	भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : कादंबरी [CC-1 C(3)]
	१. कादंबरी या साहित्यप्रकाराचे स्वरूप, घटक प्रकार आणि वाटचाल समजून घेणे.
	२. नेमलेल्या कादंबरीचे आकलन,आस्वाद आणि विश्लेषण करणे
	३. भाषिक कौशल्यविकास करणे.
	दुसरे सत्र
	भाषिक कौशल्यविकास आणि आधुनिक मराठी साहित्यप्रकार : ललितगद्य [CC-1 D(3)]
	१. ललितगद्य या साहित्यप्रकाराचे स्वरूप, घटक प्रकार आणि वाटचाल समजून घेणे.

	२. नेमलेल्या अभ्यासपुस्तकातील ललितगद्याचे आकलन,आस्वाद आणि विश्लेषण करणे
	३. भाषिक कौशल्यविकास करणे.
S.Y.B.A. **Special Paper-I (S-1)**	**पहिले सत्र**
	आधुनिक मराठी साहित्य : प्रकाशवाटा [DSE 1 A (3)]
	१. आत्मचरित्र या साहित्यप्रकाराचे स्वरूप, संकल्पना समजावून घेणे.
	२. आत्मचरित्र या साहित्यप्रकाराच्या प्रेरणा आणि वाटचाल यांची ओळख करून घेणे.
	३. ललित गद्यातील अन्य साहित्यप्रकारांच्या तुलनेत आत्मचरित्राचे वेगळेपण समजावून घेणे.
	४. नेमलेल्या या आत्मचरित्राचे आकलन, आस्वाद आणि विश्लेषण करणे.
	दुसरे सत्र
	मध्ययुगीन मराठी साहित्य : निवडक मध्ययुगीन गद्य,पद्य [DSE 2 A (3)]
	१. मध्ययुगीन गद्य,पद्य साहित्यप्रकारांची ओळख करून घेणे.
	२. नेमलेल्या अभ्यासपुस्तकातील निवडक मध्ययुगीन गद्य,पद्याचे आकलन,आस्वाद आणि विश्लेषण करणे.
S.Y.B.A. **Special Paper-II (S-2)**	**पहिले सत्र**
	साहित्यविचार [DSE 1 B (3)]
	१. भारतीय आणि पाश्चात्य साहित्यविचाराच्या आधारे साहित्याची संकल्पना, स्वरूप आणि प्रयोजनविचार समजावून घेणे.
	२. साहित्याची निर्मितिप्रक्रिया समजावून घेणे.
	३. साहित्याची भाषा आणि शैली विषयक विचार समजावून घेणे.
	दुसरे सत्र
	साहित्यसमीक्षा [DSE 2 B (3)]
	१. साहित्य समीक्षेची संकल्पना, स्वरूप यांचा परिचय करून घेणे.
	२. साहित्य आणि समीक्षा यांचे परस्पर संबंध समजावून घेणे व अभ्यासणे.
	३. साहित्यप्रकारानुसार समीक्षेचे स्वरूप समजावून घेणे व अभ्यासणे.
	४. ग्रंथ परिचय, परीक्षण व समीक्षण यातील फरक समजावून घेणे.
S.Y.B.A. कौशल्याधिष्ठित अभ्यासक्रम	**पहिले सत्र**
	प्रकाशनव्यवहार आणि संपादन |SEC 2A (2)|
	१. प्रकाशनव्यवहार आणि संपादन यासाठी आवश्यक कौशल्ये मिळविणे.
	२. प्रकाशनव्यवहार आणि संपादन यासाठी आवश्यक प्रशिक्षण घेणे.
	३. प्रकाशनव्यवहार आणि संपादन यासाठी प्रात्यक्षिकासह उपयोजनाची कौशल्ये मिळविणे.
	४. प्रकाशन संस्था, जाहिरात संस्था, छापखाने, वृत्तपत्र कार्यालये, वितरण संस्था, ग्रंथ विक्री दुकाने, फ्लेक्स निर्मिती केंद्र, वार्ताहर यांना भेटी देऊन प्रशिक्षण घेणे.
	दुसरे सत्र
	उपयोजित लेखनकौशल्ये | SEC 2 B (2)|
	१. जाहिरात, मुलाखतलेखन आणि संपादन यासाठी आवश्यक कौशल्ये मिळविणे.
	२. जाहिरात, मुलाखतलेखन आणि संपादन यासाठी आवश्यक प्रशिक्षण घेणे.
	३.जाहिरात, मुलाखतलेखन आणि संपादन यासाठी प्रात्यक्षिकासह उपयोजनाची कौशल्ये मिळविणे.
S.Y.B.A. अनिवार्य अभ्यासक्रम **Modern Indian Languages Syllabus**	**पहिले सत्र**
	मराठी भाषिक संज्ञापनकौशल्ये |MIL 2 (2)|
	१. प्रगत भाषिक कौशल्यांची क्षमता विकसित करणे.
	२. प्रसारमाध्यमांतील संज्ञापनातील स्वरूप आणि स्थान स्पष्ट करणे.
	३. व्यक्तिमत्त्व विकास आणि भाषा यांच्यातील सहसंबंध स्पष्ट करणे.
	४. लोकशाहीतील जीवनव्यवहार आणि प्रसारमाध्यमे यांचे परस्पर संबंध स्पष्ट करणे.
	५. प्रसारमाध्यमांसाठी लेखनक्षमता विकसित करणे.

	दुसरे सत्र
	नवमाध्यमे आणि समाजमाध्यमांसाठी मराठी |MIL 2 (2)|
	१. संज्ञापनातील नवमाध्यमे आणि समाजमाध्यमांचे स्वरूप आणि स्थान स्पष्ट करणे.
	२. भाषा, जीवनव्यवहार आणि नवमाध्यमे, समाजमाध्यमांचे परस्परसंबंध स्पष्ट करणे.
	३. नवमाध्यमे आणि समाजमाध्यमांसाठी लेखनक्षमता विकसित करणे.
	४. नवमाध्यमे आणि समाजमाध्यमांविषयक साक्षरता निर्माण करणे.
	५. नवमाध्यमे आणि समाजमाध्यमांचा वापर आणि परिणाम याबद्दल चर्चा करणे.
T.Y.B.A. Choice Based Credit System *(२०२१- २०२२)*	
T.Y.B.A. **General Marathi (G-3)**	**पहिले सत्र**
	भाषिक कौशल्य विकास आणि आधुनिक मराठी साहित्य प्रकार – प्रवासवर्णन
	१ मुद्रित माध्यमासाठी लेखन कौशल्ये आत्मसात करणे.
	२ प्रवासवर्णन या साहित्य प्रकारचे स्वरूप ,प्रेरणा ,प्रयोजने ,वैशिष्टे आणि वाटचाल समजून घेणे.
	३ नेमलेल्या प्रवास वर्णनाचे आकलन ,आस्वाद आणि विश्लेषण करणे।
	दुसरे सत्र -
	भाषिक कौशल्य विकास आणि आधुनिक मराठी साहित्य प्रकार– कविता
	१ मराठी साहित्य, भाषिक कौशल्यविकास आणि शासनव्यवहार यांची माहिती घेणे.
	२ कविता या साहित्यप्रकाराचे स्वरूप, वाटचाल, प्रेरणा प्रवृत्ती आणि वैशिष्ट्ये समजून घेणे.
	३. नेमलेल्या अभ्यासपुस्तकातील निवडक कवितांचे आकलन, आस्वाद आणि विश्लेषण करणे,
	४ कविता या साहित्यप्रकारातील विविध आविष्कार व भाषा रूपांची अभ्यासपुस्तकातील कवितांच्या आधारे ओळख करून घेणे
T.Y.B.A. **Special Paper III (S-3)**	**पहिले सत्र- मध्ययुगीन मराठी वाङ्याचा स्थूल इतिहास प्रारंभ ते इ.स. १६००**
	१वाड;मयेतिहास संकल्पना, स्वरूप, प्रेरणा, प्रवृत्ती समजून घेणे.
	२ मध्ययुगीन कालखंडाची सामाजिक, सांस्कृतिक पार्श्वभूमी समजून घेणे. मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेणे.
	३ मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेणे.
	दुसरे सत्र -मध्ययुगीन मराठी वाङ्याचा स्थूल इतिहास प्रारंभ ते इ.स. १६०० ते इ.स.१८१७
	१.वाड;मयेतिहास संकल्पना, स्वरूप, प्रेरणा, प्रवृत्ती समजून घेणे.
	२. मध्ययुगीन कालखंडाची सामाजिक, सांस्कृतिक पार्श्वभूमी समजून घेणे. मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेणे.
	३.मराठी भाषा, साहित्याची कालखंडानुरूप इतिहास समजून घेणे.
T.Y.B.A. **Special Paper IV(S-4)**	**पहिले सत्र**
	वर्णनात्मक भाषाविज्ञान भाग-१
	१. भाषा स्वरूप, वैशिष्ट्ये व कार्ये समजावून घेणे.
	२.भाषा अभ्यासाची आवश्यकता स्पष्ट करणे.
	३.भाषा अभ्यासाच्या शाखा आणि विविध पद्धतींचा थोडक्यात परिचय करून घेणे.
	४. वागिन्द्रियाची रचना, कार्य आणि स्वननिर्मितीची प्रक्रिया समजावून घेणे
	५. स्वनविज्ञान, स्वनिमविचार आणि मराठीची स्वनिमव्यवस्था समजावून घेणे
	दुसरे सत्र -
	वर्णनात्मक भाषाविज्ञान भाग -२
	१. रूपविन्यास आणि मराठीची रूपव्यवस्था समजावून घेणे
	२. वाक्यविन्यास आणि वाक्यव्यवस्थेचा मराठी भाषेच्या संदर्भात परिचय करून देणे
	३. अर्थविन्यास या संकल्पनेचा भाषावैज्ञानिक अंगाने परिचय करून देणे
T.Y.B.A.	**पहिले सत्र -**

SEC	**कार्यक्रम संयोजनातील भाषिक कौशल्ये भाग -१**
	१ कार्यक्रमांचे स्वरूप आणि प्रकार समजून घेणे.
	२.कार्यक्रम संयोजनातील भाषिक कौशल्ये प्राप्त करणे
	दुसरे सत्र -
	कार्यक्रम संयोजनातील भाषिक कौशल्ये भाग -२
	१. कार्यक्रम संयोजनातील लेखन कौशल्ये संपादन करणे.
	२ .कार्यक्रम संयोजनातील भाषिक कौशल्ये प्राप्त करणे.
	३.आभासी कार्यक्रमांचे भाषिक कौशल्ये संयोजन करणे.
FYB Com (Ability Enhancement Course)	
F.Y.B.Com. **Compulsory Marathi**	**पहिले/दुसरे सत्र**
	विषयाचे नाव : भाषा, साहित्य आणि कौशल्यविकास [117)
	१. विविध क्षेत्रातील भाषा व्यवहाराची स्वरूप व गरज समजावून देणे.
	२. या व्यवहार क्षेत्रातील मराठी भाषेचे स्थान स्पष्ट करणे व त्यातील मराठीच्या प्रत्यक्ष वापराचा अभ्यास करणे.
	३. विविध क्षेत्रीय मराठी भाषेच्या वापराची कौशल्ये विकसित करणे
	४. विविध लेखनप्रकारांचा अभ्यास व प्रत्यक्ष लेखनाची कौशल्ये वापरण्यास सक्षम करणे
	५. विविध क्षेत्रातील कर्तुत्ववान व्यक्तींच्या कार्याची व विचारांची ओळख करून देणे.
	६.**विद्यार्थ्यांमध्ये** नैतिक, व्यवसायिक व वैचारिक मूल्यांची जोपासना करणे.

Program Outcomes, Program Specific Outcomes and Course Outcomes

हिंदी विभाग

पाठ्यक्रम उद्धिष्ट तथा उपलब्धियाँ

अ.क्र.	पाठ्यक्रम तथा विषय	पाठ्यक्रम -उद्धिष्ट	पाठ्यक्रम –उपलब्धियाँ
1	F.Y.B.A. Hindi Gen (CBCS-2019)	1. छात्रों को हिंदी गद्य तथा पद्य का परिचय कराते हुए प्रतिनिधि हिंदी रचनाकारों का परिचय देना 2. हिंदी साहित्य के प्रति छात्रों की रूचि बढ़ाते हुए विभिन्न विधाओं से परिचित कराना 3. छात्रों में राष्ट्रप्रेम एवं सामाजिक प्रतिबद्धता की भावना विकसित करना। 4. छात्रों में नैतिक, राष्ट्रीय, सामाजिक तथा वैज्ञानिक मूल्यों के प्रति आस्था जगाना। 5. पारिभाषिक शब्दावली, पत्रलेखन, अनुवाद, सारांश लेखन, निबंध लेखन तथा वाक्य शुद्धीकरण आदि प्रयोजनीय पक्षों से अवगत कराना।	1. छात्र हिंदी गद्य, पद्य, प्रतिनिधि रचनाकारों से परिचित होते हुए उनमें हिंदी साहित्य के प्रति रूचि बढ़ जाती है। वे साहित्य की विधाओं से परिचित होते हैं। 2. छात्रों में राष्ट्रप्रेम तथा सामाजिक प्रतिबद्धता एवं भावना विकसित होती हैं। वे नैतिक, राष्ट्रीय, सामाजिक एवं वैज्ञानिक मूल्यों के प्रति सचेत होते हैं। 3. छात्र हिंदी साहित्य के प्रयोजनीय पक्ष से अवगत होते हुए पत्रलेखन, सारांश लेखन, निबंध लेखन आदिल पक्षों से परिचित होते हैं। साथ ही पारिभाषिक शब्दावली, वाक्य शुद्धीकरण एवं अनुवाद आदि प्रयोजनीय हिंदी के रूपों से परिचित हो जाते हैं।
2	S.Y.B.A. G-2 (CBCS-2019)	उद्देश्य 1.छात्रों को काव्य साहित्य से परिचित कराना 2. छात्रों को कहानी साहित्य से परिचित कराना। 3. छात्रों को हिंदी कारक-व्यवस्था समझाना। शब्द युग्म का अर्थ लिखकर प्रत्यक्ष वाक्य में प्रयोग समझाना 5 संक्षेपण लेखन का प्रत्यक्ष बोध कराना। 6 सर्जनात्मकता का विकास कराना। 7 छात्रों को व्यंग्य पाठ से परिचित कराना। 8 छात्रों को कहानी व्यंग्य पाठ का बोध कराना। 9 साक्षात्कार कला से अवगत कराना।	1.छात्र हिंदी के प्रतिनिधि कहानीकार और कवियों से परिचित होने लगता है। 2. हिंदी की कहानी और नई कविता के भाव को समझने लगता है। 3 व्यापारी पत्रों का ज्ञान होने लगता है। 4. छात्रों को पारिभाषिक शब्द, विज्ञापन, साक्षात्कार आदी से परीचय होने लगता है। 5. छात्रों को शब्द युग्म का ज्ञान होता है। 6.छात्र व्यंग्य की आवश्यकता और महत्व को समझता है। 7 तंत्र

		10 भाषा का मोबाइल तंत्र समझाना। 11 पल्लवन कला से अवगत करना।	लेखन करना समझता है। 8 बोलते समय भाषा में पल्लवन का उपयोग करता है।
3	**S.Y.B.A. S-1 (CBCS-2019)**	1 भारतीय काव्यशास्त्र का परिचय देना। 2 काव्य परिभाषा तत्व आदि से अवगत कराना। 3 काव्य के तत्व शब्द-शक्तियां का परिचय देना । 4 रस का स्वरूप समझाना। 5 भारतीय काव्यशास्त्र में रुचि पैदा करना तथा आलोचनात्मक दृष्टी को विकसित कराना। 6 छात्रों को साहित्य के भेद से अवगत कराना 7 छात्रों को पद्य भेद से अवगत कराना। 8 महाकाव्य खंडकाव्य और मुक्तक काव्य का परिचय कराना। 9 नाटक का स्वरूप समझाना। 10 छात्रों में नाट्य अभिनय की रुचि विकसित करना।	1.छात्र भारतीय काव्यशास्त्र से परिचित होता है। 2. छात्र काव्य कि परिभाषा, तत्व आदि का भाषा में समीक्षा करणे लगता है। 3. छात्र अपनी अभिव्यक्ति में शब्द शक्ति का प्रयोग करणे लगता है। 4. छात्र अपनी भाषा में रस ग्रहण करणे लगता है। 5. छात्रों की आलोचना कि दृष्टि विकसित होती है। 6. छात्र साहित्य की विविध विधओं से परिचित होकर मनपसंद विधा का चुनाव करता है। 7. छात्र महाकाव्य, खंडकाव्य और मुक्तक से परिचित होता है। 8. छात्र नाट्य अभिनय कला को आत्मसात करता है।
4	**S.Y.B.A. S-2 (CBCS-2019)**	1. कबीर के साहित्य का परिचय देना। 2. मीराबाई के काव्य से अवगत कराना। 3. भारतीय उपन्यास की अवधारणा समझाना। 4. उपन्यास कृति का मूल्यांकन कला विकसित करना। 5. साहित्य कृतियों प्रस्तुत जीवनमूल्या को आत्मविस्तृत करना। 6. रहीम के काव्य का बोध कराना। 7. बिहारी की काव्य अभिव्यंजना समझाना। 8. हिंदी नाटक और रंगमंच से अवगत कराना 9. छात्रों में अभिनय गुण विकसित कराना। 10 नाट्यालोचना से अवगत करना।	1. मध्ययुगीन प्रतिनिधी के योगदान तथा उनकी वैचारिक पृष्ठभूमि से छात्र परिचित हुए। 3. प्रस्तुत पाठ्यक्रम कारण छात्र मध्ययुगीन संत तथा संसार से परिचित हो जाते हैं। 4. हिंदी के मानदंडों के आधार पर समीक्षा करते हैं साथ ही हिंदी उपन्यास तथा नाटक के निर्माण हुई। 5. साहित्य कृती के माध्यम छात्र साहित्य के शिल्प तथा सौंदर्य से परिचित हुए। . छात्रों में अभिनय कौशल्य विकसित हो जाता है।

5	**SEC 2A (CBCS-2019)**	1 अनुवाद कौशल से छात्रों को अवगत कराना। 2 अनुवाद का स्वरूप समझाना। 3 अनुवाद क्षेत्र से परिचय कराना। 4 हिंदी से कराना। 5 अंग्रेजी से हिंदी, मराठी में अनुवाद कौषल का विकास कराना	1. छात्रों में विविध भाषा में अनुवाद करणे में रुची उत्पन्न हो जाती है। 2. छात्र अनुवाद के विविध क्षेत्र से परिचित होते है। 3. छात्र हिंदी से मराठी में प्रत्यक्ष्य अनुवाद कार्यकार्य से परिचित होता है।
6	**SEC 2A (CBCS-2019)**	1 छात्रों को माध्यम लेखन से परिचत कराना। 2 सृजनात्मक लेखन । 3 माध्यम लेखन से अवगत कराना। 4 श्रव्य-दृष्य माध्यमों की भाषा से अवगत कराना।	1 छात्र लेखन मध्य्मोंसे परिचित होता है। 2. छात्र लेखन कौषल के तंत्र से अवगत होता है। 3. छात्र श्रव्य-दृष्य माध्यमों की भाषा से परिचित होता है।
7	**T.Y.B.A. G-3**	उद्देश्य 1.छार्तों को संस्मरण साहित्य से अवगत करना। 2.छार्तों को रेखाचिर्त साहित्य से अवगत करना। 3.छार्तों को मूल्यांकन की दृश्टि का विकास करना। 4.सभा-इतिवृत्त लेखन कौषल वृद्धि का विकास करना। 5. वार्ता-लेखन कौषल दृश्टि निर्माण करना। 6.छार्तों को गज़ल साहित्य से अवगत करना। 7. छार्तों को गज़लकार के व्यक्तित्व से अवगत करना। 8. छार्तों में मूल्यांकन की दृश्टि का विकास करना। 9. छार्तों को सरकारी पत्र लेखन से अवगत करना।	1.छात्र हिंदी के संस्मरण साहित्य से परिचित होने लगता है। 2. छात्र हिंदी केरेखाचित्र साहित्य से परिचित होने लगता है। 3. संस्मरण प्रति मूल्यांकन दृष्टि विकसित होने लगती है। 4. छात्र सभा इतिवृत्त लेखन कौशल वृद्धिगत करने का प्रयास करता है। 5. छात्र तंत्र समझता है। करना 6. छात्र हिंदी के गज़ल साहित्य से अवगतहोने लगता है। 7. छात्र हिंदी केगज़लकार के व्यक्तित्व से परिचित होने लगता है। 8. छात्रगज़ल साहित्य स के प्रति मूल्यांकन की दृश्टि का विकास हो जाता है। 9. छात्रसरकारी पत्र लेखन से अवगत हो जाता है ।
8	**T.Y.B.A. Sp-3**	1. हिंदी साहित्येतिहास लेखन का परिचय देना। 2. हिंदी साहित्येतिहास के कालविभाजन तथ नामकरण का परिचय देना। 3. आदिकालीन, भक्तिकालीन, रीतिकालीन प्रमुख साहित्यिक प्रवृतियों, रचनाकारों और	1. छात्र हिंदी साहित्येतिहासके लेखन का परिचयप्राप्त करता है। 2. छात्रहिंदी साहित्येतिहास के कालविभाजन तथा नामकरण परिचयप्राप्त करता है। 3. छात्र आदिकालीन, भक्तिकालीन,

		रचनाओं से परिचित कराना। 4 आधुनिक काल की पृश्ठभूमि से छात्र अवगत कराना। 5 .भारतेंदु युगीन, द्विवेदी युग के काव्य की विषेशताओं कराना। 6. आधुनिक काल के रचनाकारों और रचनाओं परिचित कराना। 7. हिंदी गद्य के उद्भव और विकास से छात्रों को अवगत कराना	रीतिकालीन प्रमुख साहित्यिक प्रवृत्तियों, रचनाकारों और रचनाओं से परिचित हो जाता है। 4. आधुनिक काल की पृश्ठभूमि से छात्र अवगत हो जाता है। 5. छात्र भारतेंदु युग, द्विवेदी युग के विषेशताओं से है। 6. छात्रआधुनिक काल के रचनाकारों और रचनाओं से परिचित हो है। 7. छात्र हिंदी गद्य के उद्भव और विकास से अवगत हो जाता है।
9	**T.Y.B.A. SP-4**	1. भाषाविज्ञान के स्वरूप का परिचय देना। 2. छात्रों को भाषाविज्ञान की व्याप्ति समझाना। 3. भाषाविज्ञान के अध्ययन की दिषाओं क परिचय देना। 4. भाषाविज्ञान के अनुप्रयोगात्मक पक्ष को समझाना। 5. साहित्य-अध्ययन में भाषाविज्ञान की उपयोगिता समझाना। 5.भाषाविज्ञान के स्वरूप का परिचय देना। 6.छात्रों को भाषाविज्ञान की व्याप्ति समझाना 7.भाषाविज्ञान के अध्ययन की दिशाओं क परिचय देना। 8.भाषाविज्ञान के अनुप्रयोगात्मक पक्ष को समझाना। 9. साहित्य-अध्ययन में भाषाविज्ञान की उपयोगिता समझाना।	1. छात्र भाषाविज्ञान के स्वरूप का परिचय प्राप्त करता है। 2. छात्रभाषाविज्ञान की व्याप्ति समझाने लगता है। 3. छात्रभाषाविज्ञान के अनुप्रयोगात्मक पक्ष को समझाने लगता है। 4. छात्रसाहित्य-अध्ययन में भाषाविज्ञान की उपयोगिता का ज्ञान प्राप्त करता है। 5. छात्र भाषाविज्ञान के स्वरूप के परिचय से अवगत हो जाता है। 6. छात्रभाषाविज्ञान की व्याप्ति को आत्मसात करता है। 7. छात्र भाषाविज्ञान के अध्ययन की दिशाओं का परिचयप्राप्त करता है। 8. छात्रभाषाविज्ञान के अनुप्रयोगात्मक पक्ष को समझ लेता है। 9. छात्रसाहित्य-अध्ययन में भाषाविज्ञान की उपयोगिता समझ लेता है।
10	**T.Y.B.A. SEC**	1.छात्रों को स्क्रिप्ट लेखन, अर्थ, परिभाशा से अवगत कराना। 2. छात्रों को कथा, पटकथा और संवाद से परिचित कराना। 3. छात्रोंको ड्राफ्ट बनाने से परिचित कराना। 4. छात्रोंमें सिनेमा का स्वरूप से परिचित कराना। 5.छात्रोंको हिंदी साहित्य और सिनेमा के अन्तसंबंध से परिचित कराना।	1. छात्रस्क्रिप्ट लेखन, अर्थ, परिभाशा से अवगत हो जाता है। 2. छात्र कथा, पटकथा और संवाद से परिचित हो जाता है। 3. छात्र ड्राफ्ट बनाने की कला से अवगत हो जाता है। 4. छात्रसिनेमा के स्वरूप से परिचित हो जाता है। 5. छात्र हिंदी साहित्य और सिनेमा के

		6.छात्रों को हिंदी उपन्यासों पर आधारित फिल्मों से अवगत कराना।	अन्तसंबंध से परिचित हो जाता है। 6. छात्रहिंदी उपन्यासों पर आधारित फिल्मों से अवगत हो जाता है।
11	**S.Y.B.A. Gen-2 (CBCS- 2019)**	1.छात्रों को हिंदी के प्रतिनिधि कहानीकार एवंकवियों से परिचित कराना। 2.छात्रों को हिंदी कहानी एवं नई कविता की विशेषताओं के परिचित कराना । 3. हिंदी के कार्यालय एवं व्यापारिक पत्रों के स्वरुप का ज्ञान देना। 4.छात्रों को पारिभाषिक शब्द विज्ञापन वेट वार्ता साक्षात्कार रिपोर्ट लेखन आदि हिंदी भाषा के व्यवहारिक क्षेत्रों से परिचित कराना। 5.छात्रों को हिंदी शब्द युग्म का ज्ञान कराना ।	छात्र हिंदी के प्रतिनिधि कहानीकार और कवियों से परिचित होने लगता है ।हिंदी की कहानी और नई कविता के भाव को समझने लगता है।छात्रों को हिंदी के कार्यालय एवं व्यापारिक पत्रों का ज्ञान हो जाता है।छात्रों को पारिभाषिक शब्द विज्ञापन वार्ता साक्षात्कार आदि से परिचय होने लगता है।छात्रों को शब्द युग्म का ज्ञान होता है।
12	**S.Y.B.A. SP-1 (CBCS- 2019)**	1.छात्रों कोभाषा की परिभाषा विशेषताएं तथा भाषा के विविध रूपों की जानकारी देना। 2.छात्रों को हिंदी कीबोलियों तथा भाषा विकास के प्रमुख वादों से परिचित कराना। 3.छात्रों को राजभाषा हिंदी के संवैधानिकस्वरूपतथा राष्ट्रभाषा का प्रचार करने वाली संस्थाओं से परिचित कराना। 4.छात्रों में भाषा के वैज्ञानिक अध्ययन कीदृष्टि निर्माण करना। 5. भाषा विज्ञान के अंगों तथा भाषा विज्ञान की शाखा का परिचय कराना। 6. भाषा विज्ञान का अन्य विज्ञानों से संबंधविषद करना। 7.लिपि के स्वरूप एवं उत्पत्ति का इतिहास देवनागरी लिपि की वैज्ञानिकता की जानकारी देना।	छात्रों को भाषा की परिभाषा तथा भाषा के विविध रूपों की जानकारी होती है।हिंदी की बोलियां तथा भाषा विकास के प्रमुख वादों का परिचय हो जाता है।राजभाषा हिंदी के संवैधानिक स्वरूप तथा राष्ट्रभाषा का प्रचार करने वाली संस्थाओं से परिचित होता है।भारतीय वैज्ञानिक अध्ययन की दृष्टिनिर्माण होती है।भाषा विज्ञान के अंगों तथा भाषा विज्ञान की शाखाओं का परिचय होने लगता है।भाषा विज्ञान का अन्य विज्ञानों से संबंध समझ में आता है।लिपि के स्वरूप एवं उत्पत्ति का इतिहास देवनागरी लिपि की वैज्ञानिकता समझती है।
12	**F.Y.B.Com. (CBCS- 2019)**	1. छात्रों को हिंदी के गद्य एवं पद्य की प्रतिनिधि रचना करो का परिचय देना। 2.हिंदी साहित्य के प्रति छात्रों की रूचि बढ़ाना तथा साहित्य की विविध विधाओं से परिचय कराना । 3.विधाओं के माध्यम से छात्रों का भावात्मक	छात्रों को हिंदी के गद्य एवं पद्य के प्रतिनिधि रचनाकारों का परिचय होता है।हिंदी साहित्य के प्रति छात्रों रुचि बढ़ती है । राष्ट्रीय खेल सामाजिक, उत्तरदायित्व, वैज्ञानिकता आदि मूल्यों के प्रति जागृति होती है । सफल व्यापारी एवं उद्योजक की

		विकासकराना। 4.छात्रों में राष्ट्र के प्रति प्रेम एवं सामाजिक प्रतिबद्धता विकसित करना। 5.राष्ट्रीय एकता, सामाजिक, उत्तरदायित्व, वैज्ञानिकता के प्रति आदि मूल्यों के प्रति छात्रों का ध्यान आकर्षित करा । 6.सफल व्यापारी एवं उद्योजक की गुणवत्ता से अवगत कराना । 7.नैतिक मूल्य, राष्ट्रीय मूल्य सामाजिक मूल्यों के प्रति आस्था निर्माण करना। 8.परिभाषिक शब्दावली के माध्यम से वाणिज्य तथा बैंकों में प्रयुक्त हिंदीशब्दों से परिचित कराना । 9.पत्र लेखन, विज्ञापन लेखन आदि के माध्यम से भाषा के रचनात्मक पहलू से परिचित कराना । 10.संक्षेपन आदि के माध्यम से विचार क्षमता को बढ़ावा देना।	गुणवत्ता बढ़ती है।परिभाषिक शब्द के माध्यम से छात्रों को वाणिज्य तथा बैंकों में प्रयुक्त हिंदी शब्द से परिचित होता है।विज्ञापन लेखन आदि के माध्यम से छात्रों को भाषा केरचनात्मक पहलू है।संक्षेपन आदि के माध्यम से छात्रों की विचार क्षमता और कल्पना शक्ति बढ़ती है।

Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Geography

PROGRAMME: B.A. GEOGRAPHY	
Programme Outcomes	PO-1. The Geographical maturity of students in their current and future courses shall develop.
	PO-2. The student develops theoretical, applied and computational skills
	PO-3. Acquaint the students with the nature of man-environment relationship and human capability to adopt and modify the environment under its varied conditions from primitive life style to the living.
	PO-4. To identify and understand environment the population in terms of their quality and spatial distribution pattern and to comprehend the contemporary issues facing the global community.
	PO-5 To aware the students with the utility & application of hazards in different areas and its management.
	PO-6 To introduce the basic concepts and techniques of geographical analysis
	PO-7 To train the students in elementary statistics as an essential part of geography
Programme Specific Outcomes	PSO-1. To acquaint the students with geography of our Nation
	PSO-2. To make the students aware of the magnitude of problems and prospects at National level.
	PSO-3. Help the students to understand the inter relationship between the subject and the society.
	PSO-4. Help the students to understand the recent trends in regional studies.
	PSO-5. Agriculture activities and its relation with Geography
	PSO-6. To enable students to apply previously knowledge in problems and prospects in agriculture.
	PSO-7 To introduce students the concept of disaster & its relation with Geography.
	PSO-8 To awareness about GIS among the students

Course Outcomes F.Y.B.A.	
Physical Geography- Gg. 110 (A) 11201	CO- 1 To introduce the students to the basic concepts in Physical Geography.
	CO-2 To introduce latest concept in Physical Geography.
	CO-3 To acquaint the students with the utility and application of Physical Geography in different regions and environment.
	CO-4 To make the students aware about Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere)
Human Geography-Gg. 110 (B) 12201	CO-1 The geographical maturity of students in their current and future courses shall develop.
	CO-2 The students develops theoretical and computational skills.
Course Outcomes S.Y.B.A.	
Environmental Geography (G1) CC 1C	CO-1 To create the awareness about dynamic environment among the student.
	CO-2 To acquaint the students with fundamental concepts of environment.
	CO-3 The students should be able to integrate various factors of environment and dynamic aspect of environmental geography.
	CO-4 To make aware the students about the problems of environment, their utilization and conservation in the view of sustainable development.
Course Outcomes T.Y.B.A.	
Geography of Disaster Management Gg. 310(A) CC 1E	CO-1 To introduce students the concept of Disaster and its relation with Geography.
	CO-2 To acquaint the students with the utility and application of Hazards in different areas and its management.
	CO-3 To make the students aware of the need of protection and Disaster management.

Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Political Science

Bachelor of Arts (B.A.)	
Programme Outcomes	**F.Y.B.A.- Introduction to Indian Constitution (G-1)**
	PO-1. Students enable to understand the philosophy of Indian constitutions.
	PO- 2. Students enable to understand the various Government of Indian acts their provision andreforms.
	PO- 3. Students enable to know the salient features in making of Indian constitution.
	PO- 4. Students enable to appreciate the fundamental rights and duties and the directive principle ofstate policy Students enable to evaluate the evolution, functioning and consequences of political parties in India.
	PO- 5. Students enable to identify how electoral rules and procedure in India effect electionoutcomes.
	S.Y.B.A.- Introduction to Political Ideologies (G-2)
	PO- 1. Students enable to understand the nature and scope of political theory.
	PO- 2. Students enable to understand the significance of political theory.
	PO- 3. Students enable to acquaint with the theories, approaches, concepts and principles of politicaltheory.
	PO- 4. Students enable to evaluate the theories of origin of the state.
	T.Y.B.A.- Local Self Government in Maharashtra (G-3)
	PO- 1. Students enable to explain the Development of Local Self Government in British Era.
	PO- 2. Students enable to understand the contributions of various committees on local government.
	PO- 3. Students enable to describe the features and provisions of Indian Constitutional Amendmentacts regarding Local Government Institutions.
	PO- 4. Students enable to active Political participation and responsible leadership role in thefunctioning of Local Government Institutions.
Course Outcomes	
F.Y.B.A.- Introduction to Indian Constitution	CO- 1. To acquaint students with the important features of the Constitution of India
	CO- 2. To explain students with the basic framework of Indian
(G-1)	government.
	CO- 3. To familiarize students with the working of the Constitution of India.
S.Y.B.A. (CBCS- 2019)	
S.Y.B.A.- Introduction to Political Ideologies (G-2)	CO- 1. To explain students with the role of different political ideologies and their impact inpolitics
	CO- 2. To acquaint students with the Close link between an idea and its actual realization inpublic policy
	CO- 3. To explain students with the Legacy of all the major ideologies
T.Y.B.A. (Pattern Regular- 2019)	
T.Y.B.A. - Local Self Government in Maharashtra (G-3)	CO- 1. To introduce the evolution of Local Self Government in Maharashtra.
	CO- 2. To make students aware about 73rd and 74th Constitutional Amendments.
	CO- 3. To introduce the students the structure of Local Self Government.
	CO- 4. To make students aware about composition, power and functions of local bodies.

Janata Shishan Prasarak Mandal's

Loknete Marutrao Ghule Patil Mahavidyalaya Dahigaon-ne

Tal.shevgaon Ahmednagar

Department of Economics

Program Outcomes and Course Outcomes

Faculty	Class	Course Code & Name			Programme Outcomes	Course Outcomes
		Sem	Course Code	Course Name		
Arts	F.Y.B.A	I & II	DSE-1A 11151	Indian Economic Environment Sem I&II	• Ability to develop an understanding of the economic environment and the factors affecting economic environment. • Ability to develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc. • Ability to compare and contrast Indian Economy with other world economies. • At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.	• To familiarize the students with the recent developments in the Indian Economy • To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment. • To help the students to prepare for varied competitive examinations • To enable students to understand and comprehend the current business scenario, agricultural scenario and other sectorial growth in the Indian context. To make the student aware of the developments such as MSMEs, Digital Economy, E-Banking, BPO & KPO, etc.

	S.Y.B.A	II & III	DSE-1A & DSE-1B	Micro Economics Sem I&II 23151&24151	To make the students aware of Basic concepts in micro economics. To help the students understand the difference between micro and macro economics. To make the students understand economic and noneconomic goals of firms. Skills : Analyze and think critically, develop writing skills	Students will understand basic concepts of micro economics. Will be able to analyze and interpret
					To help the students understand the concept of utility. To impart knowledge of cardinal and ordinal approach. To make them understand the concept of consumer surplus. Skills: Understanding complex theories and concepts Geometrical skills, mathematical aptitude, writing skills	Will know cardinal and ordinal approach. Will understand the concept of consumer surplus.
					To understand the concept of demand and elasticity of demand. To impart knowledge of law of supply and the determinants of law of supply. To help the students understand price determination in varied demand and supply condition. Skills imparted: Applying mathematical and statistical analysis methods extracting information, drawing conclusions	Will understand the concept of demand and elasticity of demand. Will understand the concept of supply . Able to interpret equilibrium in the market.
					To help the students understand the relation between revenue concepts. To understand theories of production function.	Will understand revenue concept . Will know economies and diseconomies of scale

					To make students know about economies and diseconomies of scale. Skills: Interpret economic theories, writing skills, understand charts and graphs.	
	S.Y.B.A	II & III	DSE-2A& DSE-2B	Macro Economic Sem I&II 23151&24152	To make the students know about short run and long run cost concepts To impart knowledge about types of revenue Skills: Interpretation of cost curves, integrate cost and revenue concepts, draw inferences	Will understand the concept and types of cost. Students will know about short run and long run cost concepts. Students will have knowledge about types of revenue
					To help the students understand the concept of pure and perfect competition To impart knowledge about equilibrium of firm and industry in short and long run. Skills: Understanding, writing skills, critical thinking	Students will understand the concept of pure and perfect competition. Students will know about the equilibrium of firm and industry in short and long run.
					To develop ability to understand the market structures under imperfect competition Ability to compare perfect and imperfect competition Skills: Understand complex relations, problem solving skill, analytical skill	Will develop ability to understand the market structures under imperfect competition. Will be able to compare perfect and imperfect competition
					To understand the concept and theories in factor pricing Skills: Critical thinking, logical thinking, apply information processing skills	Will understand the theory of marginal productivity. Will understand the concept and theories in factor pricing
					□ To introduce students to the conceptual and theoretical frameworks of	To introduce students to the historical background of the emergence of macroeconomics

					inflation, deflation and stagflation, Business Cycle . To familiarize students with the conceptual and theoretical framework of business cycles To introduce students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth. To introduce students to the various instruments of monetary and fiscal policies	To familiarize students with the differences between microeconomics and macroeconomics To familiarize students with various concepts of national income To familiarize students with keynesian macroeconomic theoretical framework of consumption and investment functions To introduce students to the role of money in an economy.
	S.Y.B.A	III & IV	CC-1C & CC-1D	FINANCE SYSTEM Sem III&IV 23153 &24153	As a foundation course, in this Paper, student is expected to understand the definition, nature and scope of economics, method and approaches to the study of Economics. The chapters incorporated in this Paper deal with the theory of consumer's behavior, theory of demand and supply, analysis of production function, cost and revenue analysis, market structures and the equilibrium of a firm and industry. In addition, the principles of factor pricing and commodity pricing and welfare economics have been included.	To understand fundamentals of modern financial system. To understand the recent trends and developments in banking system. To understand the role of the Reserve Bank of India in Indian financial system. To provide the knowledge of various financial and non-financial institutions. To provide the students the intricacies of Indian financial system for better financial decision making. Method of Teaching:

					Understanding primary and secondary functions of a bank. Understanding the concepts related to lending and ratios.	Understanding primary and secondary functions of a bank. Understanding the concepts related to lending and ratios.
					Understanding the process of opening and operating procedure of bank accounts. Understanding various types of bank accounts holders	Understanding the process of opening and operating procedure of bank accounts. Understanding various types of bank accounts holders
					Understanding various methods of remittance. To develop the working capability of students in banking sector. To Make the Students aware of Banking Business and practices. To enlighten the students regarding the new concepts introduced in the banking system	Understanding various methods of remittance.
	S.Y.B.A	SEM III &IV	SEC-2A & SEC -2B	Basic Concepts in Research Methodology I &II 23154 & 24154		
	T.Y.B.A	V & VI	CC-1E& CC-1f 35153 & 36153	Indian Economic Development- I & II	At the end of the course the learner will have ability - • To relate and recognize the concept and indicators of Economic Development. • To describe and analyze the concept and indicators of Human Development. • To explain the characteristics of Developing and Developed	The course aims to introduce the learner to the main concepts in economic and human development, Equip them compare and contrast different economies: recognize various indicators of economic and human development. The course will also provide a broad outline of the Sustainable Development Goals.

					Countries. • To describe the constraints to the process of Economic Development. To describe and explain the process of Economic Planning. • To describe and examine the changing structure of planning process in India. • To describe and explain the relation between Economic Development and Environment.	
	T.Y.B.A	V & VI	DSE-1C& DSE-1D 35151 &36151	International Economics-I	• To relate and recall the concepts of International Economics and International Trade. • To describe and apply the theories of international trade. • To explain and comprehend the issues relating to Terms of trade and Balance of Payment. • Ability to relate and explain the concept of Exchange Rate and Foreign Exchange Market. • Ability to describe the trends in Growth, Composition and Direction of India's Foreign Trade.	This course provides the students a thorough understanding and deep knowledge about India's foreign trade and trade policies. The contents of the paper spread over various modules, lay stress both on theory and applied nature of the subject that have registered rapid changes during the last few decade. Besides this, the contents prepare the students to know the foreign exchange market, provisions in FEMA and convertibility of rupee. The paper also covers the Indian government's policy towards foreign capital and role of multinational corporations in India and regional and international co-operation. This paper has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization.

					• Ability to comprehend the issues relating to Foreign Capital and Regional and International Co-Operation.	
	T.Y.B.A	V & VI	DSE-2C&DSE2D 35152 &36152	Public Finance- I & II	To make students to analyze the role of Public Finance in Economic Development. To know the sources of Revenue, Expenditure and Debt of Govt. of India. To make students competent to become success in competitive examination. To explain and assess the components and instruments of Fiscal Policy. To relate to the concepts of Budget and its components. To describe and analyze the concept of Deficit Financing and its effects. To describe and explain the Centre and State Financial Relationship.	The role and functions of the Government in an economy has been hanging with the passage of time. The term 'Public Finance' has traditionally been applied to involve the use of revenue and expenditure measures along with the budgetary policy is an important part to understand the basic problems of use of resources, distribution of Income etc. The course will be useful for students aiming towards careers in the government sector, policy analysis, banking and business. This course would take an overview of government finances with special reference to India. The course aims to introduce the learner to the main concepts in public finance, equip them with an analytical grasp of government taxes: direct and indirect taxes and familiarize students with the main issues in government expenditure and debt.
	T.Y.B.A	V & VI	Skill Enhancement Course (SEC-3A)	Business Management- I Business Management- II	t the end of the Course, the Learner wi • Management of Business. • Business planning and decision making • Leadership Skills- Ability to work in teams at the same time,	Students will get an idea about the basic managerial process Students will get an idea about how planning works in real life Students will understand the process of implementati on of both the concepts Students will understand importance of

			SEC-2C&SEC-2D 35154 & 36154	(Project Report)	ability to show leadership qualities • Analytical Skills – Ability to analyze data collected and interpret in the most logical manner • Project Report Writing Skills- Ability to comprehend and illustrate/demonstrate findings • Presentation Skills – PPT/Poster- Ability to illustrate findings in the most appealing manner • Leadership Skills: Ability to show leadership skills with business ideas or work on business ventures as a practical example	proper direction and team work. Student will get acquainted with the basics of Marketing Management subject

F.Y.B.A. HISTORY Under the Faculty of Humanities

Total Credits: 03 **Semester-I**

Early India: From Prehistory to the Age of the Mauryas

Objectives:

1) The history of Early India is a crucial part of Indian history.

2) It is a base for understanding the entire Indian history.

3) The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Mauryas.

4) It attempts to highlight the factors and forces behind the rise, growth and spread of civilization and culture of India along with the dynastic history.

5) It also attempts to help the students to understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology.

6) It also aims to foster the spirit of enquiry among the students by studying the major developments in early Indian history.

Semester-II

Early India: Post Mauryan Age to the Rashtrakutas

Objectives:

1) The history of India after the Mauryas is very important to understand the developments in early India after the Mauryas, which finally led to the transition to medieval India.
2) The course is aimed at introducing the students to the developments in different parts of India through a brief study of regional kingdoms up to the tenth century C.E. It attempts to highlight the consequences of the foreign invasions, particularly on the polity, economy, society and art and architecture.
3) The attempt is also to instill the spirit of enquiry among the students.

Credit Semester -III

History of the Marathas: (1630-1707)

Learning Objectives:

1. To introduce the students to the regional history of medieval Maharashtra and India.
2. To study political, social and conceptual history of the Marathas in an analytical way with the help of primary sources.
3. To evaluate contribution of Chhatrapati Shivaji Maharaj to the establishment of Swarajya, contribution of successors and later development of the Maratha kingdom.
4. To study administrative Institutions of the Maratha.

Learning Outcome:

1. Student will develop the ability to analyse sources for Maratha History.
2. Student will learn significance of regional history and political foundation of the region.
3. It will enhance their perception of 17th century Maharashtra and India in context of Maratha history.
4. Appreciate the skills of leadership and the administrative system of the Marathas. Pedagogy: Lectures/Visual presentation/ Role play/ Critical analysis/Assignments/Tests/Quiz

Semester -IV

History of the Marathas: (1707-1818)

3 Credit

Learning Objectives:

1. To understand changed nature of Maratha Polity during the Peshwa Period.
2. To examine the dynamics of Maratha Confederacy and reciprocity.
3. To examine role of Marathas and regionality in National politics of 18th Century India.
4. To study administrative system, society and economy of the Peshawa period

Learning Outcome:

1. Students will be able to analyze the Marathas policy of expansionism and its consequences.
2. They will understand the role played by the Marathas in the 18th century India.
3. They will be acquainted with the art of diplomacy in the Deccan region.
4. It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.

Syllabus in History for S.Y.B.A. (Credit System)

3 Credit

Semester -III

Medieval India - Sultanate Period

Course objectives:

1.Demonstrate thinking skills by analyzing, synthesizing, and evaluating historical information from multiple sources.

2.Develop the ability to distinguish between fact and fiction while understanding that there is no one historical truth.

3.To Learn foundation of Delhi Sultanate and Sultanate Administration.

4.To understand the socio, economic condition of Delhi Sultanate

Course outcome:

1. Provides examples of sources used to study various periods in history.
2. Relates key historical developments during medieval period occurring in one place with another.
3. Analyses socio - political and economic changes during medieval period
4. Estimate the foreign invasion and the achievement of rulers .

Syllabus in History for S.Y.B.A. (Credit System)

3 Credit

Semester -IV

Medieval India: Mughal Period

Course objectives:

1. Produce well researched written work that engages with both primary sources and the secondary literature.

2.To learn the Mughal ruler and incidents regarding Deccan policies.

3.To understand the analytical studies of Medieval South India

4.Maps- important centers in Mughal Empire under Akbar and Aurangzeb

Course outcome:

1. Draws comparisons between policies of different rulers.
2. Understanding Role of Akbar in the consolidation of Mughal rule in India.
3. Understand Aurangzeb's conflict with Rajputas, Maratha and weakening Mughals age.
4. Analyses factors which led to the emergence of new religious ideas and movements (bhakti and Sufi)

Syllabus in History for S.Y.B.A. (Credit System)

3 Credit

Semester -III

Glimpses of the Modern World - Part I

Learning Objectives:

1. This paper is designed to introduce the students to the history of the Modern World with its socio-religious, political and economic developments.
2. It will enable students to study interesting historical developments in the countries other than India, which had a significant impact on almost all over the Modern World.
3. It will enable students to understand the significant impact of the modern concepts such as Renaissance, Nationalism, Communism, Imperialism, etc.
4. It will get students acquainted with the major revolutions, and political developments which led to the World War I and its consequences.

Learning Outcomes:

1. It will enable students to develop the overall understanding of the Modern World.
2. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.
3. It will enhance their perception of the history of the Modern World.
4. It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.

Syllabus in History for S.Y.B.A. (Credit System)

3 Credit

Semester -IV

Glimpses of the Modern World - Part II

Learning Objectives:

1. This paper is designed to introduce the students to the political history of the Modern World.
2. It will enable students to study remarkable historical developments in the various countries including India, which had a significant impact on almost all over the Modern World.
3. It will enable students to understand the significant impact of the modern concepts such as Dictatorship, Cold War, Nationalism, Communism, Imperialism, Polarization, etc.
4. It will get students acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences.

Learning Outcomes:

1. It will enable students to develop the overall understanding of the Modern World.
2. The students will get acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences.
3. It will enhance their overall perception of the history of the Modern World.
4. It will enable students to understand the significance of the strategic political developments in the Modern World.

Syllabus in History for SYBA (Credit System)

(2 Credits)

Semester III

Tourism Management

Course Objectives:

1. This paper is designed to introduce the students to Tourism Management.
2. It will get students acquainted with all the processes of Tourism Industry to work with great potential.
3. It will enable students to seek self-employment by starting their own tourism related business.

Course Outcome:

1. Students will get an overall understanding of the process of Tourism Management.
2. They will learn to work in the Tourism Management with great potential.
3. They will be able to seek self-employment by starting their own tourism related business.

Syllabus in History for SYBA (Credit System)

(2 Credits)

Semester IV

Travel Agency and Tour Business

Course Objectives:

1. This course is designed to create awareness about Travel Agency, Education and Job opportunities among the students.
2. It aims in training students on both Theory and Practical aspect and Travel Agency and creating professionals for tourism industry.
3. It will enable student to seek self-employment by starting their own Travel Agency related to business.

Course Outcome:

1. The students will understand the details of the business of Travel Agency.
2. They will be trained on both Theory and Practical aspect and Travel Agency and creating professionals for Tourism Industry.
3. It will enable student to seek self-employment by starting their own Travel Agency related to business.

Syllabus in History for **T.Y.B.A.**

(Credit system)(3 Credit)

Semester V

Course Title: - Indian National Movement (1885-1947)

Learning Objectives:

1. The course is designed to make the students aware about the making of Modern India and the struggle for independence.
2. To make the students aware of the multi-dimensionality of Modern India.
3. To highlight the ideas, institutions, forces and movements that contributed to be shaping of Indian Modernity.
4. To acquaint the students with various interpretative perspectives.

Learning Outcomes:

1. It will enable students to develop an overall understanding of Modern India.
2. It will increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students.
3. Students will understand various aspects of the Indian Independence Movement and the creation of Modern India.

syllabus in History for TYBA

(Credit system) (3 Credit)

Semester VI

Course Title: - India After Independence- (1947-1991)

Objectives:

1. To make the students aware about the making of Contemporary India and events that panned out in the Post-Independence Era.
2. To make the students aware of the Multi-Dimensionality of Modern India.
3. To highlight the ideas, institutions, forces and movements that contributed to the shaping of Indian Modernity.
4. To acquaint the students with various Interpretative and Analytical perspectives.

Course Outcomes:

1. It will enable students to develop an overall understanding of the Contemporary India.
2. To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students.
3. Students will understand various aspects of India's domestic and foreign policies that shaped Post-Independence India.

Syllabus in History for T.Y.B.A. (Credit system)

(3 Credit)

Semester –V

Course Title: Introduction to Historiography

Objectives:

1. To orient students about how History is studied, written and understood.
2. To explain methods and tools of data Collection
3. To study the types of Indian Historiography.
4. To describe importance of Inter-Disciplinary Research.
5. To introduce Students to the basics of Research.

Course Outcomes:

1. Students will be introduced to the information and importance of Historiography.
2. Students will be introduced to the different Methods and Tools of data collection.
3. Students can study the interdisciplinary approach of History .
4. Students will learn about the usefulness of History in the 21st century, its changing perspectives, the new ideas that have been invented, and the importance of History in a competitive World.
5. This curriculum develops Research abilityand process of Research Methodology in History .

Syllabus in History for TYBA

(Credit system) (3 Credit)

Semester –VI

Course Title: Applied History

Course objectives:

1) To Introduce students to information and importance of Applied History.

2) To help students understand the usefulness of history in the 21st century, its changing perspectives, the new ideas that have been invented, and the importance of History in a Competitive World.

3) To inform the students about the historical significance of Archaeology and Archives and the opportunities in the field of Archaeology and Archives through this course.

4) To inform the students about the opportunities in the field of Media, Museums through this Course.

Course Outcomes:

1. Students will be introduced to the information and importance of applied history.
2. Student will learn about the Historical significance of Archaeology and Archives and opportunities in the field of Archaeology and Archives.
3. Through this course, students will be informed about the opportunities in the field of Media, Museums.
4. Students will learn about theusefulness of history in the 21st Century, its changing Perspectives, the new ideas that have been invented, and the importance of History in a Competitive World.

Syllabus in History for T.Y.B.A.
(Credit system) (3) Credit
Semester –V

Course Title: Maharashtra in the 19th Century

Course Objectives:

1. To Introduce the students to the history of 19th century in Maharashtra
2. To study Political, Social, Economic and conceptual History of the 19th Century Maharashtra in an analytical way with the help of primary sources.
3. To evaluate contribution of 19th century in Maharashtra to the establishment of Maharashtra state contribution of successors and later development of the 19th century Maharashtra
4. To study Socio-religious System of the 19th Century in Maharashtra.

Course Outcomes:

1. Student will develop the ability to analyse sources for 19th century Maharashtra History.
2. Student will learn significance of Regional History and Socio- religious reformism foundation of the region.
3. It will enhance their perception of 19th Century Maharashtra.
4. Appreciate the skills of leadership and the Socio-religious System of the Maharashtra.

Syllabus in History for TYBA
(Credit system) (3) Credit
Semester -VI

Course Title: History of Maharashtra in the 20thCentury

Course Objectives:

1. To Introduce the students to the history of 20th Century in Maharashtra
2. To study Political, Social, Economic and Conceptual History of the 20th Century Maharashtra in an Analytical way with the help of Primary Sources.
3. To evaluate contribution of 20th Century in Maharashtra to the establishment of Maharashtra state contribution of successors and later development of the 19th century Maharashtra
4. To study Socio-Religious System of the 20th Century in Maharashtra.

Course Outcomes:

1. Student will develop the ability to analyses sources for 20th Century Maharashtra History.
2. Student will learn significance of regional history and Socio- Religious Reformism foundation of the region.
3. It will enhance their Perception of 20th Century Maharashtra.
4. Appreciate the skills of leadership and the Socio-Religious System of the Maharashtra.

Syllabus in History for TYBA
(Credit System) (2 Credits)
Semester V

SEC - Research Paper Writing

Objectives

1. To describe importance of Inter-Disciplinary Research.
2. To introduce students to the Basics of Research.
3. To Describe the Research Outline

Course Outcomes:

1. Students will be introduced to the information and importance of Historiography.
2. Students can study the interdisciplinary approach History .
3. This curriculum Will help to develop Research ability and Process of Research Paper Writing in History .

Syllabus in History for TYBA
(Credit System) (2 Credits
Semester VI

SEC:Course Title: Numismatics

Course Objectives:

1. This paper is designed to introduce the students to the Currency system of Ancient India.
2. It aims at acquainting the students about the development in the Coinage System.

Course Outcomes:

1. Students will be able to identify and decipher the Coins.
2. They will also be able to understand the Socio-Political background that accurse through the coinage of that time; thus getting holistic picture of that economic system prevalent in Ancient India.

Program Outcomes and Course Outcomes

Department of Commarce

Bachelor of Commarce	
Programme Outcomes	
	PO-1. The existing education system of imparting commerce education needs to be more dynamic to incorporate all local and global changes in the field of trade and commerce.
	PO- 2. To instill the knowledge about accounting procedures, methods and techniques.
	PO- 3. To impart students' knowledge of various Advanced Accounting Concepts.
	PO- 4. The making students many more and Archive Concepts for Accounting.
	PO- 5. To develop employability skills among the students
Course Outcomes	
F.Y. B. Com.- Computer Concepts and Application - I & II	CO- 1.To make the students familiar with Computer environment.
	CO-2 .To make the students familiar with the basics of Operating System and business
	CO-3.To make awareness among students about applications of Internet in Commerce.
	CO-4.To enable make awareness among students about e-commerce and M commerce.
	CO-5.To enable make awareness among students about e-commerce and M commerce.
	CO-6.To make the students familiar with basics of Network, Internet and related concepts.
F.Y.B.Com- Business Economics (Micro) - I	CO- 1.To impart knowledge of business economics.
	CO- 2. To clarify micro economic concepts
	CO- 3. To analyze and interpret charts and graphs
	CO-4.To understand basic theories, concepts of micro economics and their application
S.Y. B. Com. (CBCS- 2019)	
S.Y. B. Com.- CORPORATE ACCOUNTING –I	CO- 1. To acquaint the student with knowledge about various Concepts, Objectives and applicability of some important accounting standards associated with to corporate accounting.
	CO- 2. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision making process.
	CO- 3. To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013
	CO- 4. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision making process.
	CO- 5. To acquaint the student with knowledge about various Concepts , Objectives and applicability of some important accounting standards associated with to corporate accounting.
	CO- 6. To develop understanding among the students on the difference between commencement and incorporation of a company and the accounting treatment for transactions during the two phases.
	CO-7.To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013
	CO- 8. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision making process.
S.Y. B. Com. (CBCS- 2019)	
S.Y. B. Com.- CORPORATE A	Co. 1 .To acquaint the student with knowledge of corporate policies of investment for expansion and growth through purchase of stake in or absorption of smaller units.
	Co.2.To develop the knowledge among the student about consolidation of financial statement with the process of holding
	Co.3. To update the students with knowledge of the process of liquidation of a company

	Co. 4. To introduce the students with the recent trends in the field of accountancy
T.Y. B.com (CBSC-2019)	
T. Y. B. Com. (Semester- V) Paper: ADVANCED ACCOUNTING – I	CO- 1.To acquaint the student with knowledge about various concepts, objectives, and applicability of some important accounting standards
	CO-2 To develop the knowledge among the students about reorganization of business regarding restructuring the capital.
	CO-3.To update the students with knowledge for preparation of final accounts of a Banking Companies with the provisions of Banking Regulation Act 1949
	CO-4.To empower to students with skills to prepare the investment account in simple and summarized manner
T.Y. B.com (CBSC-2019)	
T. Y. B. Com. (Semester- VI) Paper: ADVANCED ACCOUNTING – II	CO.1 . . To acquaint the student with knowledge about the legal provisions regarding preparation and presentation of final accounts of Co-operative Societies.
	CO. 2. To empower to students about the branch accounting in simple.
	Co.3. To make aware the students about the conceptual aspects of various recent trends in the field of accounting especially forensic accounting, accounting of CSR activities, accounting of derivative contracts and Artificial Intelligence in Accounting.
	CO.4. To understand the procedure and methods of analysis of financial statement

Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Chemistry

BACHELOR OF SCIENCE	
PROGRAMME: B.Sc. Chemistry	
Programme Outcomes	PO-1. Solve the problem and also think methodically, independently & draw logical conclusion.
	PO-2. Use modern techniques, decent equipments & chemistry software.
	PO-3. Find out the green root for chemical reaction for sustainable development.
	PO-4. Employ critical thinking &specific knowledge to design, carry out, record & analyze results of chemical reactions.
Program Specific Outcomes	PSO-1. Understand good laboratory practices & safety.
	PSO-2. Identify chemical formulae & solve numerical problems.
	PSO-3. To explain nomenclature, stereochemistry, structure, reactivity & mechanisms of chemical reactions.
	PSO-4. Use modern chemical tools, models, charts & equipment's.
	PSO-5. Gain the knowledge of chemistry through theory & practicals.
	PSO-6. Make aware & handle the sophisticated instruments/ equipment's.
Course Outcomes F.Y.B.Sc. (CBCS- 2019)	
CH-101: Physical Chemistry	CO-1. Students will be able to apply thermodynamic principles to physical and chemical process.
	CO-2. Third law of thermodynamic and its applications.
	CO-3. Calculations of enthalpy, Bond energy, Bond dissociation energy.
	CO-4. Students will able to understand Relation between Free energy and equilibrium and factors affecting on equilibrium constant.
	CO-5. Students will able to understand Exergonic and endergonic reaction
	CO-6. Students will able to understand Concept of ionization process occurred in acids, bases and pH scale.

	CO-7. Degree of hydrolysis and pH for different salts, buffer solutions
CH- 102: Organic Chemistry	CO-1. The students are able to understand the fundamentals, principles, and recent developments in the chemistry.
	CO-2. Students are familiarizing with current and recent developments in Chemistry.
	CO-3. Students will able to understand stereochemistry related concept.
	CO-4. Students will able to understand the difference between alkane, alkene, and alkynes.
CH- 103: Chemistry Practical	CO-1. Students will learn the chemical safety while performing experiments in laboratory.
	CO-2. Students will able to learn the thermochemical parameters and related concept.
	CO-3. Students will learn the techniques of pH measurements.
	CO-4. Students will able to learn the elemental analysis of organic compounds.
	CO-5. Students will able to learn the process of Preparation of buffer solutions
CH-201: Inorganic Chemistry	CO-1. Students will Learns the Various theories and principles applied to revel atomic structure.
	CO-2. Students will able to understand structure of hydrogen atom.
	CO-3. Students will learn the Shapes of orbitals.
	CO-4. Students will define various types of chemical bonds- Ionic, covalent, coordinate and metallic bond
	CO-5. Students will define Fajan's rule, bond moment, dipole moment and percent ionic character.
	CO-6. Students will able to discuss electronic configuration of an atom and anomalous electronic configurations
CH-202: Analytical Chemistry	CO-1. Students will define term mole, mill mole, molar concentration, molar equilibrium concentration and Percent Concentration.
	CO-2. Students will able to understand the relation between molecular formula and empirical formula
	CO-3. Basics of chromatography and types of chromatography
	CO-4. Students will able to learn Separation techniques of binary mixtures and analysis
	CO-5. Students are able to understand measurement and working of pH meter

CH-203: Chemistry Practical –II	CO-1. The practical course is in relevance to the theory courses to improve the Understanding of the concepts.
	CO-2. It would help in development of practical skills of the students.
	CO-3. Use of microscale techniques wherever required
S.Y.B.Sc. (CBCS- 2019)	
CH-301: Physical and Analytical Chemistry	CO-1. Student will able to- Define / Explain concept of kinetics, terms used, rate laws, molecularity, order.
	CO-2. Determines the order of reaction by integrated rate equation method, graphical method, half-life method and differential method.
	CO-3. Students will able to define, explain and compare meaning of accuracy and precision
	CO-4. Students will able to Apply the methods of expressing the errors in analysis from results.
	CO-5. Students will able to Explain / discuss different terms related to
	errors in quantitative analysis.
CH-302: Inorganic and Organic Chemistry	CO-1. Students will able to define terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc).
	CO-2. Student will able to Draw and explain MO energy level diagrams for homo and hetero diatomic molecules. Explain bond order and magnetic property of molecule.
	CO-3. Student will able to Define different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of ligands, chelate effect, etc.)
	CO-4. Students will able to Apply IUPAC nomenclature to coordination compound
	CO-5. Students will able to Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned.
CH-303: Chemistry Practical - III	CO-1. Students will able to verify theoretical Principles experimentally
	CO-2. Students will able to Correlate theory to experiments.
	CO-3. Students will able to Understand systematic methods of identification of substance by chemical methods.

	Co-4. Students will able to write balanced equation for the chemical reactions performed in the laboratory.
	CO-5. Students will understand/verify theoretical principles by experiment observations; explain practical output / data with the help of theory.
CH-401: Physical and Analytical Chemistry	CO-1. Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
	CO-2. Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium.
	CO-3. Explain distillation of liquid solutions from temperature – composition diagram.
	Co-4. Explain / discuss azeotropes, Lever rule, Henrys law and its application.
	CO-5. Explain / discuss conductometric titrations.
	CO-6. Apply conductometric methods of analysis to real problem in analytical laboratory.
	CO-7. Explain construction and working of colorimeter.
CH-402: Inorganic and Organic Chemistry	CO-1. Student will able to- Isomerism in coordination complexes
	CO-2. Explain different types of isomerism in coordination complexes
	CO-3. Explain / discuss limitation of VBT.
	Co-4. Calculate field stabilization energy and magnetic moment for various complexes.
	CO-5. Explain: i) strong field and weak field ligand approach in Oh complexes ii) Magnetic properties of coordination compounds on the
	basis of weak and strong ligand field ligand concept
	CO-6. Perform inter conversion of functional groups.
	CO-7. Explain / discuss synthesis of carboxylic acids and their derivatives
	CO-8. Draw structures of different conformations of methyl / t-butyl monosubstituted cyclohexane (axial, equatorial) and 1, 2 dimethyl cyclohexane.
CH-403: Chemistry Practical - IV	CO-1. Interpret the experimental data on the basis of theoretical principles.
	CO-2. Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory.

	CO-3. Write balanced equation for all the chemical reactions performed in the laboratory.
	Co-4. Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction.
	CO-5. Perform the quantitative chemical analysis of substances and able to explain principles behind it.
	CO-6. Set up the apparatus properly for the designed experiments.
	CO-7. Verify theoretical principles experimentally.
Course OutcomeT.Y.B.Sc. (CBCS -2019)	
DSEC-I: CH-501: Physical Chemistry- I	CO-1. Students should understand and explain the differences between classical and quantum mechanics.
	CO-2. Students Should be able to explain De Broglie hypothesis and the uncertainty principle.
	CO-3. Students should know the Classification of molecules on the basis of moment of Inertia.
	CO-4 Students should be able to explain the difference between Rayleigh, Stokes and anti-Stokes lines in a Raman spectrum.
	CO-5. Students should be able to difference between thermal and photochemical processes.
	CO-6. Students should know Quantum yield and reasons for high and low quantum yield,
DSEC-I: CH: 502: Analytical Chemistry-I	CO-1. Students should be able to Define basic terms in gravimetry, spectrophotometry, qualitative analysis and parameters in instrumental analysis.
	CO-2. Explain different principles involved in the gravimetry, spectrophotometry, parameters in instrumental analysis, qualitative analysis.
	CO-3. Students should be able to differentiate / distinguish / compare among the different analytical terms, process and analytical methods.
	CO-4. Apply whatever theoretical principles he has studied in theory during practical session in laboratory.
DSEC-I: CH-503: Physical Chemistry Practical – I	CO-1. Student should be able to determine specific refractivity of the liquid.

	CO-2. Student should be able to determine concentration of the complex through Spectrophotometry and Colorimetry.
	CO-3. Student should be able to determine conductance of a liquid by using Conductometry.
	CO-4. Student should be able to determine viscosity of liquid by using Ostwald Viscometer.
	CO-5. Student should know the principle Photoflurometry.
DSEC-I: CH-504: Inorganic Chemistry – I	CO-1. Students should know electroneutrality principle and different types of pi bonding.
	CO-2. Explain MOT of Octahedral complexes with sigma bonding.
	CO-3. Students should able to explain Charge Transfer Spectra.
	CO-4. Students should able to compare the different approaches to bonding in Coordination compounds.
	CO-5. Students should know nuclear fuels and their applications.
	CO-6. The difference between metal, semiconductor and insulator.
DSEC-II: CH-505: Industrial Chemistry – I	CO-1. Knowledge of various industrial aspects.
	CO-2. They should also know the physico-chemical principals involved in manufacturing process.
	CO-3. Importance of sugar industry.
	CO-4 Manufacturing of ethyl alcohol by using molasses and fruit juice.
	CO-5. Synthesis, Structures, properties and applications of dyes
DSEC-II: CH-506 Inorganic Chemistry Practical	CO-1. Understood the gravimetric estimation of Fe as Fe_2O_3
	CO-2. Analyze the sodium bicarbonate from the binary mixture.
	CO-3. Analyze the Cation and Anion from the mixture.
	CO-4. Understood the gravimetric estimation of Ba as $BaSO_4$
DSEC-III: CH-507: Organic Chemistry – I	CO-1. Student Should define and classify polynuclear and heteronuclear aromatic hydrocarbons.
	CO-2. Student should be able to write structure and synthesis of polynuclear and heteronuclear aromatic hydrocarbons.
	CO-3. Student should know Synthetic applications ethyl acetoacetate and malonic ester.
	CO-4. Student should identify different types of intermediate in rearrangement reactions.

	CO-5. Student should understand stereochemistry by using models and learn reactivity of geometrical isomers.
	CO-6. Student should know effect of factors on the rate elimination reactions.
DSEC-III: CH-508: Chemistry of Biomolecules	CO-1. The types of lipids with examples, structure of lipids, properties of lipids.
	CO-2. Effect of pH on structure of amino acid, Determination of N and C terminus of peptide chain.
	CO-3. Enzyme specificity, Equations of enzyme kinetics Km and its significance, features of various types of enzyme inhibitions, industrial applications of enzymes.
	CO-4. The types of carbohydrates and their biochemical significance in
	living organisms, structure of carbohydrates and reactions of carbohydrates with Glucose as example.
CH-509: Organic Chemistry Practical-I	CO-1. Students should be able to perform the quantitative chemical analysis of binary mixture, explain principles behind it.
	CO-2. Students should be able understand the techniques involving drying and recrystallization by various method.
	CO-3. Students will be familiar to the test involving identification of special elements.
	CO-4. Students should be able learn the confirmatory test for various functional groups.
	CO-5. Students should be able to synthesis of various organic compounds through greener approach.
	CO-6. Students will be expertise in the various techniques of preparation and analysis of organic substances.
	CO-7. Students should be able understand principle of Thin Layer Chromatographic techniques.
	CO-8. Students should be able understand the purification technique used in organic chemistry.
CH-510(A) Medicinal Chemistry	CO-1 The basis of medicinal chemistry , biophysical properties , overview of basic cocepts of traditional systems of medicine
	CO- 2 Over view of the overall process of durg discovery , & the role played bey medicinal chemistry in this process.
	CO-3 Biological activity parameters & impartace of seterochemistry of durg & receptors.

	CO-4 Knowledge of mechanism of action of drugs belonging to the classes of infectious &non-infecttious dieses.
	CO-5 Enhancement of practical skills in synthsis, purification & analysis.
CH-511 (A): Environmental Chemistry	CO-1. Students should understand the importance and conservation of environment.
	CO-2. Students should be able to explain the importance of biogeochemical cycles.
	CO-3. Students should know the different Water resources.
	CO-4. Students should be able to understand the Hydrological Cycle.
	CO-5. Students should learn different organic and inorganic pollutants.
	CO-6. Students should identify different water quality parameters.
DSEC-IV: CH-601: Physical Chemistry-II	CO-1. Student should know thermodynamic conditions of reversible cell, Explanations of reversible and irreversible electrochemical cell with suitable example.
	CO-2. Student should know EMF of electrochemical cell and its measurement.
	CO-3. Student should be able to distinguish between crystalline and amorphous solids / anisotropic and isotropic solids.
	CO-4. Student should understand methods of Crystal structure analysis: The Laue method and Braggs method: Derivation of Bragg's equation.
	CO-5. Student should know types and properties of radiations: alpha, beta and gamma.
	CO-6. Student should know application of radioisotopes as a tracer: Chemical investigation-Esterification, Friedel -Craft reaction and
	structure determination w.r.t PCl_5, Age determination use of tritium and C^{14} dating.
CH-602: Physical Chemistry-III	CO-1. Meaning of the terms-Solution, electrolytes, nonelectrolytes and colligative properties,
	CO-2. Students are expected to know Factors affecting on solid state reactions, Rate laws for reactions in solid state
	CO-3. Students should know Cohesive Energy of ionic crystals based on coulomb's law and Born Haber Cycle.

	CO-4. Students are expected to know History of polymers, Classification of polymers, Chemical bonding & Molecular forces in Polymer, Molecular weight of polymers.
DSEC-IV: CH-603: Physical Chemistry Practical-II	CO-1. Student should be able to determine emf of liquid by using Potentiometry.
	CO-2. Student should know the principle of pH metry.
	CO-3. Student should know the principle and operation of G M Counter.
	CO-4. Student should know the principle and operation of G M Counter.
	CO-5. Student should know the Colligative properties.
	CO-6. Student should know the principle of Turbidometry.
CH-604: Inorganic Chemistry –II	CO-1. Students should be able to understand M-C bond and to define organometallic compounds.
	CO-2. To know methods of synthesis of binary metal carbonyls.
	CO-3. A student should be able to Understand the phenomenon of catalysis, its basic principles and terminologies.
	CO-4. A student should identify the biological role of inorganic ions & compounds.
	CO-5. A student should be able to draw the structure of Vit.B_{12} and give its metabolism.
	CO-6. A student should understand Preparation of inorganic solids by various methods.
DSEC-V: CH-605: Inorganic Chemistry -III	CO-1. How acid and base strengths get affected in non-aqueous solvents.
	CO-2. Draw the simple cubic, BCC and FCC structures.
	CO-3. Be able to solve simple problems based on Born- Haber cycle.
	CO-4. Different Zeolite Framework Types and their classification.
	CO-5. Various methods of nanoparticle synthesis.
	CO-6. To know toxic chemical in the environment.
	CO-7. To know the biochemical effect of Arsenic, Cd, Pb, Hg.
CH-606 Inorganic Chemistry Practical	CO-1. Understood the Phosphate from fertilizer.
	CO-2. Analyze the Calcium from milk powder.
	CO-3. Analyze the Strength of medicinal H_2O_2.
	CO-4. Analyze the Na by flame photometry

	CO-5. Analyze the K by flame photometry
DSEC-VI: CH-607: Organic	CO-1. Students will learn the principle of mass spectroscopy, its
Chemistry-II	instrumentation and nature of mass spectrum.
	CO-2. Students will understand the principle of IR spectroscopy, types of vibrations and the nature of IR spectrum.
	CO-3. Students will understand the principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy. They will learn measurement of chemical shift and coupling constants.
	CO-4. Students will be able to interpret the NMR data and they will be able to use it for determination of structure of organic compounds.
	CO-5. Student should know the geometrical isomerism in disubstituted cyclohexane's.
	CO-6. Student should know the stability of geometrical isomers of decalin.
DSEC-VI: CH-608: Organic Chemistry-III	CO-1. Meaning of terms Disconnection, Synthons, Synthetic equivalence, Functional Group Interconversion, Target Molecule
	CO-2. To write mechanism of some named rearrangement reactions.
	CO-3. Understand the difference between carbocation & carbanion.
	CO-4. Synthesis of Citral and Ephedrin by Barbier- Bouveault and Nagi methods, respectively.
	CO-5. Synthetic applications some reagents.
	CO-6. Various methods of isolation/extraction of these natural products.
	CO-7. To determine the structure of above compounds by chemical methods.
CH-609: Organic Chemistry Practical-II	CO-1. Students should be able to identify the functional group or groups present in a compound.
	CO-2. Students should be able to understand use NMR spectra to determine the structures of compounds.
	CO-3. Students should be able to calculate coupling constants from 1 H NMR spectra.
	CO-4. Students should be able to achieve the practical skills required to estimations of glucose and glycine and saponification value of oil.
	CO-5. Students should be able to determine the molecular weight of given tribasic acids.

	CO-6. Students should be able to apply the principles of extraction.
	CO-7. Students should be able to describe the extraction separation process.
	CO-8. Students should be able to explain the processes of a chromatography analysis.
	CO-9. Students should be able to realize the selection of appropriate mobile phase, column and detector.
CH-610 (A): Chemistry of Soil and Agrochemicals	CO-1. Understood various components of soil and soil properties and their impact on plant growth.
	CO-2. Understood the classification of the soil.
	CO-3 Got experience on advanced analytical and instrumentation methods in the estimation of soil.
	CO-4 Proper understanding of chemistry of pesticides will be inculcated among the students.
	CO-5. Imparts knowledge on different pesticides, their nature and, mode of action and their fate in soil so as to monitor their effect on the environment.
CH-611(A): Analytical Chemistry-II	CO-1. Students should be able to define basic terms in solvent extraction.
	CO-2. Students should be able to identify important parameters in analytical processes or estimations.
	CO-3. Students should be able to explain different principles involved in the analyses using solvent extraction, basics of instrumental chromatography, HPLC, GC, and atomic spectroscopic techniques.
	CO-4. Students should be able to perform quantitative calculations depending upon equations students have studied in the theory.
	CO-5. Students should be able to discuss / describe procedure for different types analyses included in the syllabus.

Program Outcomes and Course Outcomes

Department of Botany

PROGRAMME: B. Sc. BOTONY	
Course Outcomes F.Y.B.Sc. (CBCS- 2019)	
Programme Outcomes	PO-1. Students know about different types of lower & higher plants their evolution from algae to angiosperm & also their economic and ecological
	PO-2. Cell biology gives knowledge about cell organelles & their functions
	PO-3. Molecular biology gives knowledge about the chemical properties of nucleic acid and their role in living systems.
	PO-4. Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal abrasions & multiple alleles.
	PO-5. Structural changes in chromosomes.
	PO-6.Students can describe morphological & reproductive characters of plants and also identify different plant families and classification.
	PO-7.They know the economic importance of various plant products & artificial methods of plant propagation
	PO-8. Use modern Botanical techniques and decent equipment.
	PO-9.To inculcates the scientific temperament in the students and outside the scientific community.
Course Outcomes F.Y.B.Sc. (CBCS- 2019)	
Semester: I Paper I: BO 111 Plant life and Utilization I	CO-1. Know the terminologies in Plant kingdom.
	CO-2. Gain the knowledge of outline of plant kingdom.
	CO-3. Know about the structure and life history of Algae, Fungi, Lichens and Bryophytes.
	CO-4. Understand the application of Algae, Fungi, Lichens and Bryophytes.
Paper II BO 112 Plant Morphology	CO-1. Understand the concepts and importance of plant morphology.
	CO-2. Know the reproductive parts of the flower.
	CO-3. Gain the knowledge of terminologies in plant anatomy.
	CO-4. Learn the internal organization of various tissues and plant body.
Paper III BO 113 Practical based on BO 111 & BO 112	CO-1. Gain the practical knowledge of reproductive structures of plants.
	CO-2. Understand the life cycle pattern in *Spirogyra*, *Agaricus* and *Riccia.*
	CO-3. Gain the knowledge about the types of fruit in plants.
	CO-4. Understand the internal morphology of dicot and monocot plants.
Semester: II Paper I BO 121 Plant Life and Utilization II	CO-1. Gain the knowledge the of plant diversity.
	CO-2. Describe the life cycle and economic importance of Pteridophytes.
	CO-3. Understand the life cycle and economic importance of Gymnosperms.
	CO-4. Know about the classification system in Angiosperms.
Paper II Principles of Plant Sciences BO122	CO-1. Know the importance and scope of Plant Physiology.
	CO-2. Understand the various processes in plant physiology.
	CO-3. Explain the concepts of cell biology and cell cycle.
	CO-4. Understand the biochemical nature of DNA.
Paper III BO 123 Practical based on BO 121 and BO 122	CO-1. Understand the life cycle of *Nephrolepis* and *Cycas.*
	CO-2. Know the comparative account of dicot and monocot plants.
	CO-3. Gain the practical knowledge of mitosis and meiosis.
	CO-4. Gain the practical knowledge of estimation of chlorophyll pigment,
S.Y.B.Sc. (CBCS- 2019)	
Botany (Paper I) Sem-I BO-231 Taxonomy of Angiosperms and Plant Ecology	CO-1. Understand the Taxonomy of Angiosperm.
	CO-2. Classify the Angiosperm plants.
	CO-3. Gain the knowledge about Plant families and plant nomenclature.
	CO-4. Describe the plant ecology.
Botany (Paper-II) Sem-I BO-232 Plant Physiology	CO-1. Gain the Knowledge of Plant Physiology scope and Importance.
	CO-2. Understand the concept of Transpiration Ascent of sap.
	CO-3. Describe the Nitrogen metabolism.

	CO-4. Get aware about physiology of flowering and seed germination.
Botany (Paper-III) Sem-I BO-233 Practical based on BO-231 & BO-232	CO-1. Gain the practical knowledge of Taxonomic tools ecological instrument plant families.
	CO-2. Understand the internal morphology of hydrophytes and xerophytes.
	CO-3. Analysed the different test, processes of plant physiology.
	CO-4. Gain the practical knowledge about seed germination, Transpiration
Botany (Paper I) Sem-II BO-241 Plant Anatomy and Embryology	CO-1. Understand the scope and importance of plant Anatomy.
	CO-2. Classify the different types of tissue systems.
	CO-3. Gain the knowledge about growth of plants.
	CO-4. Describe the different processes in embryology.
Botany (Paper II) Sem-II BO-242 Plant Biotechnology	CO-1. Understand the scope and importance of plant biotechnology.
	CO-2. Gain the knowledge about Plant tissue culture and single cell protein.
	CO-3. Understand the plant genetic Engineering, Genomics, Proteomics and Bioinformatics.
	CO-4. Describe the Bioremediation and Biofuel technology.
Botany (Paper III) Sem-II BO-243 Practical based on BO-241 & BO-242	CO-1. Gain the practical knowledge of plant anatomy.
	CO-2. Understand the practical technique of double stained temporary preparation of plant stem.
	CO-3. Understand the working principle of tissue culture lab instrument.
	CO-4. Gain basic practical knowledge of plant tissue culture, Transgenic plants, *Spirulina* cultivation.
T.Y.B.Sc. (CBCS- 2019)	
BO 351 Algae and Fungi	CO-1. Study of cryptogams to understand their Diversity.
	CO-2. Know the systematics, morphology, and structure of algae, fungi, bryophytes, and Pteridophytes.
	CO- 3. Know the life cycle pattern of cryptogams.
	CO-4. Know the economic importance of cryptogams.
	CO-5.Know the evolution of algae, fungi, bryophytes, and Pteridophytes.
BO 352 Archegoniate	CO-1.Gain knowledge about cell and its function.
	CO-2.Learn the scope and importance of molecular biology.
	CO-3. Understand the ultrastructure of the cell wall, plasma membrane, and cell
	CO-4. Understand the biochemistry of the cell.
	CO-5. Understand the biochemical nature of nucleic acid and its role in living systems.
BO 353 Spermatophyta and Paleobotany	CO-1.Understand the Mendelian and neo-Mendelian genetics.
	CO-2 Know about the interaction of genes, multiple alleles and linkage and crossing over.
	CO-3. Know about sex-linked inheritance, chromosomal aberrations.
	CO-4. Know the evolutionary sequence of various groups of plants
BO 354 Plant Ecology	CO-1. A systematic study of gymnosperms and angiosperms.
	CO-2.Understand the morphological and reproductive character of spermatophyte plants.
	CO-3.Understand the economic importance of gymnosperms and angiosperms.
	CO-4.Understand the diversity among spermatophyte.
	CO-5.To bring an investigation of palaeobotanical study in India.
	CO-6.Know, scope and application of Palaeobotany.
	CO-5.Know types of fossils, geological time scale.
BO 355 Cell and Molecular Biology	CO-1.Understand the economic importance of plant and plant products.
	CO-2. Know the methods of plant propagation.
	CO-3.Understand the fruit & vegetable production technology.
	CO-4.Understand the scope & importance of floriculture.
	CO-5.Understand the methods of cultivation of different flowering plants.

BO 356 Genetics	CO-1. Understand the scope & importance of biostatistics.
	CO-2. Understand the scope and some basic commonly used terms like sampling, data, dispersion, population, central tendency, etc.
	CO-3. Knowledge to apply statistical analysis to biological data for testing different hypotheses
BO 361 Plant Physiology and Metabolism	CO-1. Know the scope and importance of plant physiology.
	CO-2 Understand plant & water relation.
	CO-3. Understand the process of photosynthesis, C_3, C4, CAM pathways.
	CO-4. Understand the process of respiration, growth and developmental process in plants.
	CO-5. Understand the biochemistry of cells.
	CO-6. Understand the different biochemical reactions of biomolecules in plant cells
BO 362 Biochemistry	CO-1. Know the biotic and abiotic components of the ecosystem.
	CO-2. Food chain & food web in the ecosystem.
	CO-3. Understand diversity among various groups of the plant kingdom. CO-
BO 363 Plant Pathology	CO-1. Understand the scope and importance of plant pathology.
	CO-2. Know the disease cycle and disease development.
	CO-3. Know the effect of plant diseases on the economy of crops.
	CO-4. Know the methods of studying plant diseases.
	CO-5. They can identify plant diseases like a bacterial, nematodes, and fungi.
	CO-6. Know the disease forecasting.
	CO-7. Know the prevention and control measures of plant diseases
BO 364 Evolution and population genetics	CO-1. Understand the scope and importance of pharmacognosy.
	CO-2. Know the cultivation, collection, processing & importance of various
	CO-3. Understand the scope of economic botany.
	CO-4. Know the botanical resources like nonwood forest products.
	CO-5. Understand the concept of Ayurvedic pharmacy.
BO 365 Advanced Plant Biotechnology	CO-1. Understand the fundamental of recombinant DNA technology.
	CO-2. Understand tissue culture techniques.
	CO-3. Role of microbes in agriculture, medicine & industry.
	CO-4. Know the fermentation technology.
	CO-5. Understand the concept of bioinformatics, genomics & proteomics.
	CO-6. Understand technical germplasm & cryopreservation
BO 366 Plant Breeding and Seed Technology	CO-1. Understand the scope & importance of plant breeding.
	CO-2. Know the technique of production of new superior crop varieties.
	CO-3. Know the about heterosis, hybrid vigor, etc.
	CO-4. Know the process of hybrid variety, development & their release.
	CO-5. Know about seed germination, processing, production, etc

Zoology Programme Outcomes: B. Sc Zoology

Course Outcomes B. Sc Zoology Semester I & II	
Course	**Outcomes** After completion of these courses students should be able to;
F.Y.B.Sc.	**Semester I and II**
Paper - I ZY-101:- Animal Systematic and Diversity-I and II	**CO-1** Understand the evolution, history of Systematics classification in animals. **CO-2** Understand the evolution, history of Invertebrates **CO-3** They know Salient features of all Invertebrate phylum in detail. **CO-4** Understand the examples of all Invertebrate phylum in detail. **CO-5** Understand the structure and function of unicellular animals. **CO-6** Talk about Migration, Neoteny & Parental Care in Different Animals. **CO-7** Talk the various internal systems like Digestive system, nervous system in Paramoecium, Earthworm and Frog with the help of charts
Paper- II Fundamentals of Cell BBiology and Genetics	**CO-1** Understand the laws of heredity and their practical application. **CO-2** Understand the Test cross and Back cross. **CO-3** Understand the concept of gene interaction, codominance and incomplete dominance. **CO-4** Understand the Lethal genes and their examples. **CO-5** Understand the Concept, characteristics and importance of multiples alleles, ABO & Rh-blood group system and its medicolegal importance. **CO-6** Talk about types of chromosomes and Chromosomal theory of sex determination. **CO-7** Talk about the human karyotype and Syndromes. **CO-8** Understand Inborn errors of metabolism and Sex linked inheritance in human. **CO-9** Understand the Genetic counseling, Concept of genetic Engineering and Eugenics.

F.Y.B.Sc. P- III ZY-103:- Zoology Practical	**CO-1** Discuss the phylum with suitable specimens. **CO-2** To prepare the temporary and permanent slide of different mitotic phases in the root cap. **CO-3** To prepare live Paramoecium culture in the Laboratory. **CO-4** Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts. **CO-5** Understand the karyotype from metaphase chromosomal spread pictures and blood groups in humans. **CO6** Understand the cell organelles from electron micrographs. **CO-7** To understand practicals for visiting the vermiculture unit/biodiversity spot/large water body.
F.Y.B.Sc.	**New Syllabus of CBCS** **Semester I**
F.Y.B.Sc. Paper I Animal Diversity I (Course Code- ZO-111)	**CO-1** To understand the Animal diversity around us. **CO-2** To understand the underlying principles of classification of animals. **CO-3** To understand the terminology needed in classification. **CO-4** To understand the differences and similarities in the various aspects of classification. **CO-5** To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature. **CO-6** To understand our role as a caretaker and promoter of life. **CO-7** The student will be able to understand, classify and identify the diversity of animals. **CO-8** The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. **CO-9** The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
F.Y.B.Sc. Paper II Animal Ecology (Course Code: ZO 112)	**CO-1** The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population. **CO-2** To understand, anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature. **CO-3** The Learner understands and appreciates the diversity of ecosystems and

	applies beyond the syllabi to understand the local lifestyle and problems of the community. **CO-4** The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment . **CO-5** The working in nature to save the environment will help development of leadership skills to promote betterment of the environment.
Paper III **Zoology Practical Paper (Course Code: ZO113)**	**CO-1** Discuss the phylum with suitable specimens. **CO-2** To prepare the culture of Paramecium . **CO-3** To prepare the permanent slides: Spicules and Gemmules in Sponges, T.S. of Sycon, T.S. of Hydra, Taenia Solium: Scolex, Gravid proglottid. **CO-4** Visit to Zoological survey of India/ Museum/National Park. **CO-5** Understand the animal community structure, Determination of density, frequency and abundance of species by quadrat method. **CO-6** To understand microscopic fauna of freshwater ecosystems. **CO-7** To understand Estimation of water holding capacity of given soil sample and Estimation of dissolved and free carbon dioxide from water sample**.** **CO-8** To understand the Eutrophication in lake/river.
F.Y.B.Sc.	**Semester II**
Paper -I Animal Diversity II **(Course Code: ZO-121)**	**CO-1**To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature. **CO-2** The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life. **CO-3** To understand the terminology needed in classification. **CO-4**To understand our role as a caretaker and promoter of life. **CO-5** To understand the Animal diversity around us. **CO-6** To understand the underlying principles of classification of animals. **CO-7** The student will be able to understand, classify and identify the diversity of animals. **CO-8** The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. **CO-9** To understand the differences and similarities in the various aspects of classification.

F.Y.B.Sc. Paper II Cell Biology (Course Code: ZO122)	**CO-1** The learner will understand the importance of cell as a structural and functional unit of life. **CO-2** The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates life to the aspect of development. **CO-3** The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life. **CO-4** The cellular mechanisms and its functioning depends on endo-membranes and structures. They are best studied with microscopy.
F.Y.B.Sc. Paper III Zoology Practical Paper (Course Code: ZO123)	**CO-1** Discuss the phylum with suitable specimens. **CO-2** To prepare the culture of Paramecium . **CO-3** To prepare the permanent slides: Mouthparts of Insects -Mandibulate, Piercing and sucking, Chewing and Lapping. **CO-4** To understand Economic importance of honey bees, Lac insects silkworms, red cotton bug, Anopheles mosquito **CO-5** To understand types of Shells in Mollusca. **CO-6** To understand vermicomposting bin preparation and maintenance. **CO-7** Visit to a vermicomposting unit/ field for insect pest collection and its identification **CO-8** To understand the Microscope (Simple and Compound) and Measurement of microscopic objects. **CO-9** To understand the preparation of a temporary mount of human buccal epithelial cells and blood smears to observe the blood cells. **CO-10** To understand the temporary preparation of mitotic cells from onion roots **CO-11** To understand the study of Cell organelles.
S.Y.B.Sc.	**Semester-I**
Paper- I **ZY-211 Animal Systematic and Diversity**	**CO-1** Understand the evolution, history of phylum. **CO-2** Understand about the Phylum Arthropoda. **CO-3** They know the Salient features of phylum Arthropoda, Mollusca and Echinodermata upto classes. **CO-4** Understand the economical importance of Insects and Molluscs. **CO-5** Understand about structure and function of Mouthparts.

-III	**CO-6** Understand the evolution, history of Echinoderms. **CO-7** Talk about the evolution, history of Migration in birds. **CO-8** Talk about the various internal systems like Digestive system, nervous system in Starfish with the help of charts.
Paper- II **Applied Zoology-I**	**CO-1** Understand an introduction to fisheries and its types. **CO-2** Understand the Different types of ponds used in fishery. **CO-3** Understand the Habit, habitat and culture methods of Rohu, Catla, Mrigal, Giant prawn. **CO-4** Understand the Harvesting methods of Harpadon, Mackerel, Lobster, Pearl oyster. **CO-5** Understand the Crafts and gears in Indian Fishery. **CO-6** Talk about Fishery byproducts. **CO-7** Talk about Fish preservation technique. **CO-8** Understand the Agricultural Pests and their control. **CO-9** Understand the Pest control practices in brief**.**
S.Y.B.Sc.	**Semester-II**
Paper- I **ZY-211 Animal Systematic and Diversity - IV**	**CO-1** Understand the evolution and History of class Reptilia, Aves, Mammalia. **CO-2** They know Salient features of class Reptilia, Aves, Mammalia with Suitable Examples. **CO-3** Understand the poisonous and non-poisonous snakes with the help of charts. **CO-4** Understand the evolution and History of Desert reptiles, aerial Birds . **CO-5** Understand structure and function of beak and feet modification in birds . **CO-6** Understand the evolution and history of aquatic and egg laying Mammals. **CO-7** Understand the economical importance of Molluscan shells. **CO-8** Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts.
Paper- II Applied Zoology-II	**CO-1** Understand the An introduction to Apiculture, Study of habit, habitat and nesting behavior of bees. **CO-2** Understand the Life cycle, Colony organization and division of labour, Polymorphism. **CO-3** Understand the Bee behaviour, bee communication and Bee keepingequipment. **CO-4** Understand the Bee keeping and seasonal management.

	CO-5 Understand the Bee products, Diseases and enemies of Bees. **CO-6** Talk about Bee pollination. **CO-7** Talk about An introduction to sericulture, Study of different types of silk moths, their distribution and varieties of silk produced by Mulberry, Tassar, Eri and Muga silkworms in India. **CO-8** Understand the Cultivation, Harvesting of mulberry. **CO-9** Understand the Silk worm rearing, Post harvest processing of cocoons**.**
Paper- III **Zoology Practical (ZY-223)**	**CO-1** Discuss the phylum with suitable specimens. **CO-2** To prepare the temporary and permanent slide of T.S. of Arm, pedicellariae and mouthparts respectively . **CO-3** Discuss the shell and foot modification in Mollusca with suitable specimens. **CO-4** Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts. **CO-5** To understand practicals for visiting the sea coast/fishery institute/sericulture farm/apiculture institute / agricultural farm.
S.Y.B.Sc. (2020 CBCS PATTERN)	**New Syllabus of CBCS** **Semester I**
S.Y.B.Sc. Paper I Animal Diversity III (Course Code-ZO-231)	**CO-1** To understand the origin and advancement of higher Vertebrates . **CO-2** To understand general characters of different groups of higher vertebrate. **CO-3** To understand the different behaviour and adaptations in higher vertebrates. **CO-4** To understand the affinities among different groups of higher Vertebrates. **CO-5** To classify vertebrates and to become able to understand the possible group of vertebrates observed in nature. The students will be able to understand the complexity of higher vertebrates. **CO-6** The students will be able to understand different life functions of higher vertebrates. **CO-7** The students will be able to understand the linkage among different groups of higher vertebrates.

S.Y.B.Sc. Paper II Applied Zoology I (Course Code: ZO 232)	**CO-1** To understand the biology, varieties of silkworms and the basic techniques of silk production and harvesting of cocoons. **CO-2** To learn the different silkworm species and their host plants. **CO-3** To study types of agricultural pests and Major insect pests of agricultural importance. **CO-4** To study Pest control practices. **CO-5** The learner understands the basics about beekeeping tools, equipment, and managing beehives. **CO-6** The learner understands the basic information about fishery, cultural and harvesting methods of fishes and fish preservation techniques.
S.Y.B.Sc. Paper III **Zoology Practical Paper (Course Code: ZO233)**	**CO-1** Discuss the phylum with suitable specimens. **CO-2** Understand the types of Fin in Fishes. **CO-3** To prepare the slides: Placoid, Ctenoid, Cycloid, Ganoid Scale. **CO-4** Visit to Zoological survey of India/ Museum/National Park. **CO-5** To understand microscopic fauna of freshwater ecosystems. **CO-6** To understand external morphology, life cycle and their importants of Silkworm. **CO-8** To understand agricultural pests and their management.
S.Y.B.Sc. (2020 CBCS PATTERN)	**Semester II**
S.Y.B.Sc. Paper -I Animal Diversity IV **(Course Code: ZO-241)**	**CO-1** The students will be able to understand, classify and identify the diversity of higher vertebrates. **CO-2** The students will be able to understand the complexity of higher vertebrates. **CO-3** The students will be able to understand different life functions of higher vertebrates. **CO-4** The students will be able to understand the linkage among different groups of higher vertebrates. **CO-5** The student will become aware regarding his role and responsibility towards nature as a protector, to understand his role as a trustee and conservator of life which he has achieved by learning, observing and understanding life

S.Y.B.Sc. Paper II Applied Zoology II (Course Code: ZO 242)	**CO-1** To understand the basic life cycle of the honey bees, beekeeping tools and equipment. **CO-2** To learn to manage bee hives for honey production and pollination. **CO-3** To understand the basic information about fishery, cultural and harvesting methods of fishes. **CO-4** To understand fish preservation techniques. **CO-5** The learner understands the biology, varieties of silkworms and the basic techniques of silk production. **CO-6** The learner understands the types of agricultural pests, Major insect pests of agricultural importance and Pest control practices.
S.Y.B.Sc. Paper III Zoology Practical Paper (Course Code: ZO 243)	**CO-1** Discuss the phylum with suitable specimens. **CO-2** To understand external morphology, life cycle and their importants of Honey Bees. **CO-3** To prepare the temporary mounting of the mouthparts of different Insect. **CO-4** To understand the external and internal structure of Rat. **CO-5** To understand Animal Diversity in and around the campus. **CO-6** . To understand classification and importance of aquatic Fish. **CO-7** Visit to an apiculture unit/ Fish Farm/Aquarium for more study about fishes. **CO-8** To understand maintenance of aquariums. **CO-9** To understand Craft and Gear in Fishing. **CO-10** To understand nutritional values of Fish.

Janata Shishan Prasarak Mandal's

Loknete Marutrao Ghule Patil Mahavidyalaya Dahigaon-ne

Tal.shevgaon Ahmednagar

Department of Physics

PROGRAMME OUTCOMES: B. Sc. PHYSICS

Department of Physics	After successful completion of three year degree program in physics a student should be able to;
Programme Outcomes	PO-1. Demonstrate, solve and an understanding of major concepts inall disciplines of physics. PO-2. Solve the problem and also think methodically, independently anddraw a logical conclusion. PO-3. Employ critical thinking and the scientific knowledge to design,carry out, record and analyze the results of Physics experiments. PO-4. Create an awareness of the impact of Physics on the society, and development outside the scientific community. PO-5. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, decent equipment's and Phonics software's
Course Outcomes B. Sc Physics	
Course	**Outcomes** After completion of these courses students should be able to;
F. Y. B. Sc.	**Semester I**
F.Y.B.Sc. P I	CO-1. To understand the motion, displacement, velocity, and acceleration. CO-2. To understand the energy, work, and force. CO-3. To understand the viscous force, viscosity, and application of viscous force. CO-4. To understand the surface tension, angle of contact and stress andstrain, application of surface tension. CO-5.To demonstrate quantitative problem-solving skills in of topics covered.
F.Y.B.Sc. P II	CO-1. To understand the general structure of atom, the spectrum of hydrogen atoms. CO-2.To understand the excitation and laser principles. CO-3.To understand the bonding mechanisms and their different types.

	CO-4.To demonstrate and understanding of E.M waves and spectrum. CO-5.To understand the types and sources of E.M waves and application. CO-6.To demonstrate quantative problem solving skills in of topics covered.

F.Y.B.Sc. P III	1. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. 2. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data. 3. Demonstrate an understanding of laboratory procedures including safety, and scientific methods. 4. Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena. 5. Acquire the complementary skills of collaborative learning and Teamwork in laboratory settings.
F. Y. B. Sc.	**Semester II**
F.Y.B.Sc. P I	CO-1. Describe the properties of and relationships between the thermodynamic properties of a pure substance. CO- 2. Describe the ideal gas equation and its limitations. CO- 3. Describe the real gas equation. CO-4. Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process. CO- 5. Analyze the heat engines and calculate thermal efficiency. CO- 6. Analyze the refrigerators, heat pumps and calculate the coefficient ofperformance. CO- 7. Understand property 'entropy' and derive some thermo dynamical relations using the entropy concept. CO- 8. Understand the types of thermometers and their usage.
F.Y.B.Sc. P II	CO-1. Demonstrate an understanding of the electric force, field and potential, and related concepts, for stationary charges. CO-2. Calculate the electrostatic field and potential of simple chargedistributions using Coulomb's law and Gauss's law. CO-3. Demonstrate an understanding of the dielectric and its effect ondielectric due to electric field. CO-4. Demonstrate an understanding of the magnetic field for steady currents using Biot-Savart and Ampere's laws. CO-5. Demonstrate an understanding of the magnetization of materials. CO-6. Demonstrate quantitative problem-solving skills in all the topics covered**.**
F.Y.B.Sc. P III	1. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. 2. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data. 3. Demonstrate an understanding of laboratory procedures including safety,

	and scientific methods. 4. Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena. 5. Acquire the complementary skills of collaborative learning and teamwork in laboratory settings**.**

S.Y.B.Sc. P I	CO-1 Understand the complex algebra useful in physics coursesCO-2 Understand the concept of partial differentiation. CO-3 Understand the role of partial differential equations in physics CO-4Understand vector algebra useful in mathematics and physics CO5- Understand the singular points of differential equation.
S.Y.B.Sc. P II	CO-1 Apply laws of electrical circuits to different circuits.CO-2 Understand the relations in electricity CO-3 Understand the properties and working of transistors.CO-4 Understand the functions of operational amplifiers. CO-5 Design circuits using transistors and operational amplifiers. CO-6 Understand Boolean algebra and logic circuits.
S.Y.B.Sc. P I SEM II	CO-1.Understand the physics and mathematics of oscillations. CO-2 Solve the equations of motion for simple harmonic, damped, and forced oscillators. CO-3 Formulate these equations and understand their physical content in a variety of applications, CO-4 Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion. CO-5 Explain oscillation in terms of energy exchange, giving variousexamples. CO-6 Solve problems relating to undamped, damped and force oscillators and superposition of oscillations. • Understand the mathematical description of travelling and standing waves. CO-7 Recognize the one-dimensional classical wave equation and solutionsto it. CO-8 Calculate the phase velocity of a travelling wave. CO-9 • Explain the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer. CO-10 Define the decibel scale qualitatively, and give examples of soundsat various levels. CO-11 Explain in qualitative terms how frequency, amplitude, and waveshape affect the pitch, intensity, and quality of tones produced by musicalinstruments' problems of oscillatory motion. • Explain oscillation in terms ofenergy exchange, giving various examples. Solve problems relating to undamped, damped and forced oscillators and superposition of oscillations. CO-12 Understand the mathematical description of travelling and standingwaves. Recognize the one-dimensional classical wave equation andsolutions to it. Calculate the phase velocity of a travelling wave. Explainthe Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.

	CO-13 Define the decibel scale qualitatively, and give examples of sounds at various levels. Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments.

S.Y.B.Sc. P II	CO-1 acquire the basic concepts of wave optics CO-2 describe how light can constructively and destructively interfere CO-3 explain why a light beam spreads out after passing through an apertureCO-4 summarizes the polarization characteristics of electromagnetic waves CO-5 appreciate the operation of many modern optical devices that utilize wave optics CO-6 Understand optical phenomena such as polarization, birefringence, interference and diffraction in terms of the wave model. CO-7 analyses simple examples of interference and diffraction phenomena. CO-8 be familiar with a range of equipment used in modern optics.
S.Y.B.Sc P III	CO 1. After completing this practical course students will be able toCO 2 Use various instruments and equipment. CO 3 Design experiments to test a hypothesis and/or determine the valueof an unknown quantity. CO 4 Investigate the theoretical background to an experiment. CO 5 Set up experimental equipment to implement an experimental approach. CO 6 Analyze data, plot appropriate graphs and reach conclusions fromyour data analysis. CO7 Work in a group to plan, implement and report on a project/experiment. CO 8 Keep a well-maintained and instructive laboratory logbook.
S.Y.B.Sc-2020 SEMESTER III (2020 CBCS PATTERN)	**Credit Pattern**
S.Y.B.Sc-2020 P-I	**Course code and title: PHY-231: Mathematical Methods in Physics**CO-1. After the completion of this course, students will be able to Understand the complex algebra useful in physics courses. CO-2.Understand the concept of partial differentiation. CO-3.Understand the role of partial differential equations in physics. CO-4 .Understand vector algebra useful in mathematics and physics. CO-5 .Understand the concept of singular points of differential equation
S.Y.B.Sc-2020 P-II	**Course code and title: PHY-232**: **Electronics** On successful completion ofthis course the students will be able to Apply different theorems and laws to electrical circuits.CO-1• Understand the relations in electricity. CO-2 Understand the parameters, characteristics and working of transistors. CO-3 Understand the functions of operational amplifiers.

	CO-4 Design circuits using transistors and applications of operationalamplifiers. CO-5 Understand Boolean algebra and logic circuits.

S.Y.B.Sc-2020 P-III	**Course code and title: PHY-233: Practical Course (Laboratory 2A)** CO-1. After completing this practical course students will be able to use variousinstruments and equipment. CO-2..Design experiments to test a hypothesis and/or determine the value ofan unknown quantity. Investigate the theoretical background of an experiment. CO-3. Set up experimental equipment to implement an experimental approach. Analyze the data, plot appropriate graphs and reach conclusionsfrom data analysis. CO-4.Work in a group to plan, implement and report on a project/experiment. V. Keep a well-maintained and instructive laboratory logbook.
S.Y.B.Sc-2020 SEMESTER - IV P-I	**Course code and title: PHY-241**: **Oscillations, Waves, and Sound**CO-1 To study underlying principles of oscillations and its scope indevelopment. CO-2 To understand and solve the equations / graphical representations ofmotion for simple harmonic, damped, forced oscillators and waves. CO-3 To explain oscillations in terms of energy exchange with variouspractical applications. CO-4 To solve numerical problems related to undamped, damped, and forced oscillations and superposition of oscillations. CO-5 To study characteristics of sound, decibel scales and applications.
S.Y.B.Sc-2020 SEMESTER - IV P-II	**Course code and title: PHY-242**: **Optics Acquire the basic concept ofwave optics.** CO-1.Describe how light can constructively and destructively interfere. CO-2...Explain why a light beam spread out after passing through an aperture Summarize the polarization characteristics of electromagnetic waves Understand the operation of many modern optical devices that utilizewave optics CO-3.Understand optical phenomena such as polarization, diffraction and interference in terms of the wave model Analyze simple examples of interference and diffraction.
S.Y.B.Sc-2020 SEMETER - IV P-III	**Course code and title: PHY-243: Practical Course (Laboratory 2B)** CO-1.Use various instruments and equipment. CO-2 Design experiments to test a hypothesis and/or determine the value ofan unknown quantity.

	project/experiment. CO-7.Keep a well-maintained and instructive laboratory logbook.

	Semester-III
PH-331: Mathematical Methods in Physics II	CO-1. Know the Cartesian, spherical polar and cylindrical co-ordinate systems. CO-2. To understand the Special Theory of Relativity.CO-3. Discuss the Michelson- Morley Experiment. CO-4 To obtain the series solution by Frobenius method. CO-5 Study the Generating function for Legendre, Hermite polynomials.
PH 332: Solid State Physics	CO-1. Know the principles of structures determination by diffraction CO-2. To understand the principles and techniques of X-rays diffractionCO-3. Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density CO-4. To give an extended knowledge about magnetic properties like diamagnetic, paramagnetic, ferromagnetic, ferrites and superconductors
PH-333: Classical Mechanics	CO-1. Understand Newton's Laws of motion and their applications such as projectile and rocket motion CO-2. Gain knowledge of motion in central force fieldCO-3. Classify elastic and inelastic scattering CO-4. Know the difference between Laboratory and centre of mass system CO-5. Understands Lagrangian and Hamiltonian formulation CO-6 Solve the problems using Lagrangian and Hamiltonian formulation CO-7 Get knowledge of the canonical transformation and Poisson's bracket
PH-334: Atomic and Molecular Physics	CO-1. To know the Rutherford Experiment of atoms. CO-2. To understand molecular spectra of atoms. CO-3. To study the Raman spectra. CO-4. To study the Zeeman Effect. CO-5. To understand the Quantum Numbers.
PH-335: Computational Physics	CO-1. Write an algorithm and flow chart for c-programming language. CO-2. To use iterative, decision making and the jump statement. CO-3. Understand the concept of arrays and pointers. CO-4. Study of user-defined functions and program structures. CO-5. Able to use the concept graphics in c language.

PH-336 B: Elements of Materials Science	CO-1. To study the Mechanical, Electrical and Thermal Properties of material. CO-2. Discuss the type of Phase Diagrams. CO-3. Know the solid solution and types of solid solution. CO-4. Understanding the Point Defect, Line Defect with example. CO-5. Study the Diffusion Mechanism. CO-6. Know the difference between Elastic and Plastic Deformation. CO-7. To understand the Polymer Vulcanization of rubber. CO-8. Know the AX-type crystal structure – e.g. NaCl, ZnS etc.
Course Outcomes B. Sc. Physics **Semester-IV**	
PH-341 Classical Electrodynamics	CO-1. Understand Mechanics of system of particles. CO-2. Know the Motion in Central Force Field. CO-3 Elastic and inelastic scattering. CO-4. Solve Langrangian and Hamiltonian formulation. CO-5. Learn Canonical Transformation and Poisson's Bracket.
PH-342: Quantum Mechanics	CO-1. Understand De-Broglie hypothesis and Uncertainty principle
	CO-2. Derive Schrodinger's time dependent and independent equations CO-3. Solve the problems using Schrödinger's steady state equation CO-4. Get knowledge of rigid rotator CO-5. Understand different operators in Quantum Mechanics
PH-343: Thermodynamics and Statistical Physics	CO-1. To study kinetic theory of Gases. CO-2. To study Maxwell Relations and Application. CO-3. Know the elementary concept of statistics. CO-4. Understand statistical distribution of system of particles. CO-5. To study statistical ensembles. CO-6. To study Quantum statistics.
PH-344: Nuclear Physics	CO-1. Know the properties of nucleus likes binding energy, magnetic dipole moment and electric quadruple moment CO-2. To understand the concept of radioactivity and decays law CO-3. To study achievement of Nuclear Models of Physics and its limitations CO-4. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion CO-5. To understand the basic concept of Particle Physics

PH-346 K: Lasers	CO-1. Know the history of LASERS and its basic concepts. CO-2. Understand the basic principle and working of different types of lasers. CO-3. Know the applications of lasers in various fields.CO- 4. Understand the characteristics of LASERS. CO-5. Learn safety precaution sand measures while handling the lasers.
Practical 1	1.After completing this practical course students will be able to 2 Use various instruments and equipment. 3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity. 4 Investigate the theoretical background to an experiment. 5 Set up experimental equipment to implement an experimental approach.6 Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 7 Work in a group to plan, implement and report on a project/experiment. 8 Keep a well-maintained and instructive laboratory logbook
Practical 2	1. After completing this practical course students will be able to 2 Use various instruments and equipment. 3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity. 4 Investigate the theoretical background to an experiment. 5 Set up experimental equipment to implement an experimental approach.6 Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 7 Work in a group to plan, implement and report on a project/experiment. 8 Keep a well-maintained and instructive laboratory logbook
Practical 3	1.After completing this practical course students will be able to2 Use various instruments and equipment. 3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity. 4 Investigate the theoretical background to an experiment. 5 Set up experimental equipment to implement an experimental approach.6 Analyze data, plot appropriate graphs and reach conclusions from your data analysis. 7 Work in a group to plan, implement and report on a project/experiment. 8 Keep a well-maintained and instructive laboratory logbook

PH-345: Electronics	CO-1. Know the special purpose Diode. CO-2. To study the Transistor Amplifier. CO-3. To understand the FET, JFET, MOSFET. CO-4. To study the Operational Amplifier and their types. CO-5. To know the Timer IC- 555 and its classification. CO-6. To study the Regulated Power supply. CO-7. To understand the Sequential Logic Circuits.

Department of Mathematics

B. Sc Mathematics

Programe Outcomes B. Sc Mathematics	
All Courses	(i) A student should be able to recall basic facts about mathematics and should be ableto display knowledge of conventions such as notations, terminology and recognizebasic geometrical figures and graphical displays, state important facts resulting from their studies. (ii) A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. (iii) A student should get adequate exposure to global and local concerns thatexplore them many aspects ofMathematical Sciences. A student be able to apply their skills and knowledge that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. (v) A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

Course Outcomes	
F.Y.B.Sc.	**Semester I and II**
Paper - I **MT-101:-** Algebra and Geometry	1. Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. 2. Apply factor theorem, remainder theorem to solve problems on polynomials and by using given relations between roots he will find the roots of polynomials. 3. Solve the problems of lines in 3-D, planes, sphere and cylinder and how geometry is related ton algebra by using their algebraic equation. 4. Solve the system of homogeneous and non homogeneous linear if m equations in n variables by using concept of rank of matrix, finding eigen values and eigen vectors.
Paper- II **MT-102** Calculus and Differential Equations	1. Identify algebraic and order properties of real number. 2. Identify and apply the function properties of real number system such as completeness property. 3. Verify the values of limit of a function at a point using the definition of a limit. 4. Student will be familiar with the techniques of integration and differentiation of function with real variables. 5. Identify and apply the intermediate value theorem, mean value theorem and L-Hospital rule 6. Identify types of differential equations and solve differential equation such as Exact, homogeneous, non- homogeneous and linear and Bernoulli differential equations etc..

F.Y.B.Sc.	New Syllabus of CBCS (2019 PATTERN) Semester I
F.Y.B.Sc. **Paper I** **Algebra** **(Course Code-MT-111)**	1. To study about sets, relations, equivalence relations, equivalance classes and partition of sets. 2. To study division algorithm, The GCD, The LCM, Euclid's lemma. 3. To study about the primes and the theory of congruence and fermat's theorem. 4. Students will learn about sums and products, basic algebraic properties, module, complex conjugates, exponential form, products and quotients, De-Movier's theorem of complex numbers.

F.Y.B.Sc. **Paper II Calculus-I (Course Code: MT-112)**	1. Identify algebraic and order properties of real number. 2. Identify and apply the function properties of real number system such ascompleteness property. 3. Verify the values of limit of a function at a point using the definition of a limit. 4. Student will learn sequences and their limits, limits theorems, monotonesequence, subsequences and Bolzano-Wierstrass theorem. 5. To study about continuouse function and continuous functions on intervals.
Paper III **Mathematics Practical Paper (Course Code: MT-113)**	1. Students will learn how to solve problems using maxima software.
F.Y.B.Sc.	**Semester II**
Paper -I Analytical Geometry (Course Code: MT-121)	1. To study about the analytical geometry of 2-D, general equation of second degree in two variables, reduction to standard form, center of conic, nature of conic. 2. Solve the problems of lines in 3-D, planes, sphere and cylinder and how geometry is related to algebra by using their algebraic equation.
F.Y.B.Sc. **Paper II Calculus-II (Course Code: MT-122)**	1. Identify and apply the intermediate value theorem, mean value theorem,L-Hospital rule, Taylor's theorem, successive differentiation. 2. To study about the linear first order equation, seperable equations,existanceand uniqueness of solutions of non linear equations. 3. To study about the transformation of non linear equations to seperableequations, exact differential equations, integrating factors.
F.Y.B.Sc. **Paper III Mathematics Practical Paper (Course Code: MT-123)**	1. Students will learn how to solve problems using maxima software.
S.Y.B.Sc.	**Semester-I**
Paper- IMT **211 Multivaria**	1. Students learn analysis of multivariable functions, continuity anddifferentiability. 2. Learn the concept of multiple integrals and their application to area andvolumes.

ble **Calculus I**	
Paper- II **MT 212(B)** **Lapalce Transform and Fourier Series**	1. Learn the methods and properties of laplace transform and inverse laplace transform, apply them to solve linear differential equations. 2. Apply the fundamental concept of fourier series, fourier sine series, fourier cosine series to find series representation of irrational numbers.
S.Y.B.Sc.	**Semester-II**
Paper- I **MT-221** **Linear Algebra**	1. Use the concept of basis and dimension of vector spaces linear dependance and linear independence, to solve problems. 2. Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis. 3. Apply the properties of linear transformations to linearity of transformation, kernel and rank of linear transformation , inverse transformation to solve the problems of matrix transformations, change of basis.
Paper- II **MT 222(A)** **Multivariable calculus II**	1. Student develop knowledge in the limit, continuity, differentiation of vector functions. 2. Use the varies techniques of solving integral problems of vector valued functions.
Paper- II **MT 222(B)** **Numerical Method and It's Application**	1. To study about algebraic and transcendental equations, bisection method , method of false position and Newton-Raphson method. 2. Students will learn finite difference operators, differences of a polynomial, Newton's and Lagrandes's interpolation formula. 3. To study about the numerical differentiation, integration and Simpson's 1\3 rd and 3\8 th rule. 4. To study numerical solution of first order ordinary differential equations.
S.Y.B.Sc.	**New Syllabus of CBCS (2020 PATTERN)** **Semester I**
S.Y.B.Sc. **Paper I** **Calculus of several variable (Course Code- MT-231)**	1. To study about the function of several variables, limits and continuity. 2. To study about the partial derivatives and differentiability, partial differential equation and wave equation. 3. Student will learn extreme values of functions of two variables, second derivative test, Lagrange multiples.

	4. Study about integrated integrals, Fubini's theorem, double integral in polar condition, Jacobians, change of variables in multiple integrals.
S.Y.B.Sc. Paper II Numerical Method and It's Application (Course Code: MT 232(A))	1. To study about algebraic and transcendental equations, bisection method , method of false position and Newton-Raphson method. 2. Students will learn finite difference operators, differences of a polynomial, Newton's and Lagrandes's interpolation formula. 3. To study about the numerical differentiation, integration and Simpson's 1\3 rd and 3\8 th rule. 4. To study numerical solution of first order ordinary differential equations.
S.Y.B.Sc. Paper III Mathematics Practical Paper (Course Code: MT-233)	1. Students will learn how to solve problems using maxima software.
S.Y.B.Sc.	**Semester II**
S.Y.B.Sc. Paper -I Linear Algebra (Course Code: MT-241)	1. Use the concept of basis and dimension of vector spaces linear dependance and linear independence, to solve problems. 2. Apply the properties of linear transformations to linearity of transformation, kernel and rank of linear transformation , inverse transformation to solve the problems of matrix transformations, change of basis.
S.Y.B.Sc. Paper II Vector Calculus (Course Code: MT-242(A))	1. To study about the curves in space, limits and continuity, integrals of vector functions, unit tangent vector, curvature of plane curve and normal vectors for space curve. 2. Students will learn line integrals, additivity, vector fields, gradient fields,work done by a force over a curve in space also path independences, green's theorem. 3. To study about parameterization of surfaces, implicit surface, surface integrals, orientation of surfaces. 4. To study about applications of integrals, Stocks' theorem, divergence in 3-D, divergence theorem, unifying the integral theorems.
S.Y.B.Sc. Paper III Mathematics Practical Paper	1. Students will learn how to solve problems using maxima software.