Shirur Shikshan Prasarak Mandal

Chandmal Tarachand Bora College

Shirur, Dist- Pune

POs, PSOs, COs

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1. Department of Marathi

Program Outcome (PO)

B.A. Marathi

PO1	Understand the employ of humanistic qualitative and quantitative, theoretical or philosophical methods for recording and explaining human experience.
PO2	Develop the skill to analyse Interpret and understand Interrelationship's author texts and specific social political and historical
PO3	Develop a sense of love and social commitment towards the nation among students.
PO4	Investigate the variety of human

Program Specific Outcome (PSO)

B.A. Marathi

Sr. No.	***A student completing the three-year study in Marathi will be able to:***
PSO1	Able to understand language fully and use it appropriately.
PSO2	Understand the concept of history of literature.
PSO3	Understand the art of content writing in Marathi for Media.
PSO4	Understand the basis of the classification of Marathi literature.
PSO5	Introducing the nature of criticism, the usefulness of criticism and the qualities of criticism to students.
PSO6	Let the students know the definitions of language and various variations of language.
PSO7	Understand the origin of Marathi language and its literature.

Savitribai Phule Pune University, Pune
F.Y.B.A. (Credit System) from the academic Year 2019-20
Under the Faculty of Humanities

MARATHI

Course Outcomes (COs) of Bachelor of Arts (BA)

Semester I

Core Course- 1A (CC-1A), (3 Credits)
Course Title: Marathi sahitya –katha ani bhashik kaushalya vikas - 1A, Course Code: 11021 A

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Marathi Language which will help the students in their day-to-day life.
CO 2	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.
CO 3	Develop a sense of love and social commitment towards the nation among students.
CO 4	Developing student's creative power.

Semester II

Core Course- 1B (CC-1B), (3 Credits)
Course Title: Marathi sahitya –Ekankika ani bhashik kaushalya vikas - 1A, Course Code: 11022 A

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of short stories and essays.

Semester I

Core Course- 1A (CC-1A), (3 Credits)
Course Title: Vyawaharik va upyojit Marathi- 1A, Course Code: 11021 B

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Marathi Language which will help the students in their day-to-day life.
CO 2	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.

CO 3	Develop a sense of love and social commitment towards the nation among students.
CO 4	Developing student's creative power.

Semester II
Core Course- 1B (CC-1B), (3 Credits)
Course Title: Vyawaharik va upyojit Marathi - 1A, Course Code: 11022 B

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of short stories and essays.

Savitribai Phule Pune University, Pune
S.Y.B.A. (Credit System) from the academic Year 2020-21
Under the Faculty of Humanities
MARATHI
Course Outcomes (COs) of Bachelor of Arts (BA)

Semester III

Core Course- 1C (CC-1C), (3 Credits)
Course Title: BHASHIK KAUSHALYAVIKAS AANI ADHUNIK MARATHI SAHITYAPRAKAR - kadambri
Course Code: 23023

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Hindi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Developing student's ability to taste Marathi novels and Drama.
CO 3	Understand the basic elements of short stories and novel.
CO 4	Students Know to Marathi story writers and Poets.

Semester IV

Core Course- 1C (CC-1C), (3 Credits)
Course Title: BHASHIK KAUSHALYAVIKAS AANI ADHUNIK MARATHI SAHITYAPRAKAR – lalit Gadhya
Course Code: 23024

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Hindi, reading newspaper, short stories, watching movie and creative writing.

CO 2	Developing student's ability to taste Marathi novels and Drama.
CO 3	Understand the basic elements of short stories and novel.
CO 4	Students Know to Marathi story writers and Poets.

Semester III

Core Course- 1D (CC-1D), (3 Credits)

Course Title: : PRAKASHANVYAWAHAR AANI SANPADAN

Course Code: 23025 SEC

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
CO 2	Learn the basic elements of Kavyashastra.
CO 3	Understand and interpret the concept, structure and meaning of poetry.
CO 4	Students learn objectives of literature.

Semester IV

Core Course- 1D (CC-1D), (3 Credits)

Course Title: UPYOJIT LEKHANKAUSHALYE

Course Code: 24025 SEC

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand and interpret the concept, structure and meaning of upyojit lekhankushalye.
CO 2	Creating ability to review students based on the varied criteria of Marathi lekhankaushalye.
CO 3	Learn the basic elements of Marathi upyojit lekhankushalye.

Semester III

Modern Indian Language- Marathi (MIL Marathi) (2 Credits)

Course Title: MARATHI BHASHIK SANDNYAPAN KAUSHALYE

Course Code: 23011

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Introduction of the medieval Marathi language and literature
CO 2	Have a basic knowledge of Hindi Language which will help the students in their life.
CO 3	Learn the history, effect, ethics and creative writing in Media.
CO 4	Understand and apply concepts such as plot, structure, characterization, point of view and narrative technique in the context of short stories

Semester IV

Core Course- 1D (CC-1D), (3 Credits)

Course Title: NAVMADHYAME AANI SAMAJ MADHYAMANSATHI MARATHI

Course Code: 24011

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Students Know to Marathi Irony literature writers.
CO 2	Developing student's ability to taste Irony literature.
CO 3	Understand the basic elements of Irony literature.
CO 4	Understand basic grammar, conversational Marathi, reading newspaper, and creative writing.

Semester III

Discipline Specific Elective Course- 1A (DSE-1A), (3 Credits)

Course Title: ADHUNIK MARATHI SAHITYA– PRAKASWATA

Course Code: 23021 (S-1)

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
CO 2	Learn the basic elements of literature.
CO 3	Understand and interpret the concept, structure and meaning of poetry.
CO 4	Students learn types of literature.

Semester IV

Discipline Specific Elective Course- 2A (DSE-2A) (3 Credits)

Course Title: MAMADHYAYUGIN MARATHI SAHITYA (NIVADAK MADHYAYUGIN GADYA, PADYA)

Course Code: 24021

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Introduction of the historical survey of medieval Marathi literature
CO 2	Acquaint with different elements of Drama.
CO 3	Understand the concept and meaning of Madhyayugin poetry.
CO 4	Students Know to Marathi Drama writers.

Semester III

Skill Enhancement Course- 2A (DEC-1B) (3 Credits)

Course Title: SAHITYAVICHAR

Course Code: 23022 (S2)

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Learn the history, effect, ethics and creative writing in Media.
CO 2	Gather acquaintance with the basic workings in radio, T.V., Cinema etc, Media.
CO 3	Understand the basic workings of television and film industry.

CO 4	Learn the basic elements of Media writing.

Semester IV

Skill Enhancement Course- 2A (SEC-1B) (3 Credits)
Course Title: SAHITYA SAMIKSHA
Course Code: 24022

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Interrelation between literature and society
CO 2	Obtaining the skills of literary criticism. Illustrating the nature of literary forms like one act-play, travelogue, short story and poetry.
CO 3	Introduction of the medieval Marathi language and literature.
CO 4	Introduction of the medieval Marathi language and literature.

Savitribai Phule Pune University, Pune
T.Y.B.A. (Credit System) from the academic Year 2021-22
Under the Faculty of Humanities

MARATHI
Course Outcomes (COs) of Bachelor of Arts (BA)

Semester V

Core Course- 1E (CC-1E), (3 Credits)
Course Title: BHASHIK KAUSHALYA VIKAS ANI ADHUNIK MARATHI SAHITYAPRAKAR - PRVASVRNAN
Course Code: - 3027

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understanding the nature and features of Modern Marathi literature.
CO 2	Getting motivation for creative writing.
CO 3	students learn method of writing letters.
CO 4	Acquire appropriate communication skills for effective college learning.

Semester VI

Discipline Specific Elective Course 1C (DSE-1C), (3+1=4 Credits)
Course Title- BHASHIK KAUSHALYA VIKAS ANI ADHUNIK MARATHI SAHITYAPRAKAR - KAVITA
Course Code: 3027

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the origin of Marathi language and its literature.
CO 2	Understand the basis of the classification of Marathi literature
CO 3	Understand the basic elements of s stories and Poems.

CO 4	Understand the concept of history of literature.

Semester V

Core Course- 1E (CC-1E), (3 Credits)
Course Title: Vyawaharik va upyojit Marathi Course Code: 3027

Sr. No.	On completing the course, the student will be able to:
CO 1	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of short stories and essays.

Semester VI
Core Course- 1E (CC-1E), (3 Credits)
Course Title: Vyawaharik va upyojit Marathi – Course Code: 3027

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Marathi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of short stories and essays.

Semester V

Discipline Specific Elective Course- 2C (DSE-2C) (3+1=4 Credits)
Course Title: Bhashavigyan Varnanthamak BHAG 01
Course Code: - 3029

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the concept of linguistics.
CO 2	Learn the history of linguistics & Marathi Language.
CO 3	Learn the basic elements of linguistics.
CO 4	Know the types of words, phonetic, Semantics, Morphology etc.

Semester VI

Discipline Specific Elective Course- 2C (DSE-2C) (3+1=4 Credits)

Course Title- : Bhashavigyan Varnanthamak BHAG 02

Course Code:3029

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the concept of language.
CO 2	Let the students know the definitions of language and various variations of literature.
CO 3	Learn the basic elements of language.
CO 4	Know the importance of Devnagari Script.

Semester V

Discipline Specific Elective Course- 2C (DSE-2C) (3+1=4 Credits)

Course Title:,MADHYAUGIN MARATHI VANGMYACHA SHUL EITHIHA PRARAMBHA TE 1600

Course Code: - 3028

Sr. No.	**On completing the course, the student will be able to:**
CO 1	To study the socio-cultural and political background of 1300 to 1600 periods
CO 2	Special studies of ancient literature
CO 3	Inspiration of ancient Marathi literature, by studying the tendency
CO 4	Special studies of devotional literature

Semester VI

Discipline Specific Elective Course- 2C (DSE-2C) (3+1=4 Credits)

Course Title: MADHYAUGIN MARATHI VANGMYACHA SHUL EITHIHAS -1601 to 1817

Course Code: - 3028

Sr. No.	**On completing the course, the student will be able to:**
CO 1	The uniqueness of Marathi literature of Shiva period
CO 2	Special studies of scholarly literature
CO 3	Interrelation between literature and society.

Department of Marathi

Programme Outcomes (Po) of Master of Arts (M.A.)

1. Enriching students' literary and life skills.
2. To enhance the attitude of medical study of literature
3. To develop linguistic awareness and apply skills
4. To develop various language skills and employment potential in the field of life
5. To cultivate literary values and values of life
6. Increase interest in reading literature and other arts
7. To introduce Students Eocene social, political, religious literary and economic conditions perspective Watchtower.

Program Specific Outcome (PSO) of Master of Arts (M.A.)

1. Able to understand language fully and use it appropriately.
2. Speak and write grammatically correct Marathi.
3. Cultivate universal human values.
4. Let the students know the definitions of language and various variations of language.
5. Understand the basis of the classification of Marathi literature.
6. To introduce Students Eocene social, political, religious literary, and economic conditions perspective Watchtower.
7. The study of Literature and language can enhance geographical and social mobility.

Course Outcomes (COs) of Master of Arts (M.A.)

Semester- I

Course Title- CC 1 – BHASH VYAVHAR VA BHASHK KUOSHLY
Code- 10401

1) There was accuracy in the speech of the students
2) The standard language began to appear accurately in the writing of students
3) Students were able to write critical language, especially when writing reviews
4) Students noticed the contradiction between spoken language, literary language, standard language and review language.

Course Title- CC 2 -ARVACHIN MARATHI VAGAMAYACHA EITIHAS
Code- 10402 (1818 TO 1920)

1) Understood the concept of literary history.
2) Understood the social, religious, cultural background of this period
3) Understood the type, form and movement of literature during this period
4) Understood the literary inspiration and subject matter of this period

Course Title- CC 3- EYATYASHIK BAHASHA VIDYAN, Code- 10403

1) Understood language format and function.
2) Understood language study methods.
3) Understood linguistic concepts.
4) Understood sociolinguistics concepts.
5) Understood the interrelationships between language and culture.

Course Title- CC 4 – GRAMIN SAHITYA, Code- 10404

1) Understood the inspiration of Gramin literature after independence.
2) Understood the nature and movement of Marathi Gramin literature.
3) Understood the nature and inspiration of Marathi Gramin literature.
4) Understood the contribution of Marathi Gramin and literature.

Semester 02

Course Title- CC 5 – BHASHA VYAVHAR VA BHASHK KUOSHLY
Code- 20401

1) Translation and translation writing skills can be done.
2) Understanding how to make a statement of statement in various programs.
3) What is public relations? The search processes,
4) understanding, language and components.

Course Title- CC 6 –- ARVACHIN MARATHI VAGAMAYACHA EITIHAS (1920TO 2010)
Code- 20402

1) Understood the inspiration and nature of Marathi literature from 1920 to 1945.
2) Understood various thought processes in this period e.g.
3) Gadhiism, Socialism, Marxism ... New literature and new reviews of this period were introduced.
4) Literary genres of this period were introduced

Course Title- CC 7- SAMAJ BHASHA VIDYAN, Code- 20403

1) Understood the nature of sociolinguistics.
2) Sociolinguistics special and scope understood.
3) Understood the relationship between language and social status.
4) Language and language contact noticed.

Course Title- CC 8 – DALIT SAHITYA, Code- 20404

1) Understood the nature of Marathi Dalit literature.
2) Marathi Dalit literature understood inspiration and uniqueness.
3) Various types of Marathi Dalit literature were introduced.
4) Dalit literature and social commitment were introduced.

Semester 03

Course Title- CC 1 – Writing Skills for Media Part-1, Code- 30401

1) The media understood the concept.
2) Understood the nature and specialty of media.
3) Gained writing skills for radio.
4) Understood how to write for television. Gained the ability to write for media.

Course Title- CC 1 – Critisim in Literature, Code- 30402

1) Literature and review is the concept.
2) Various components of review were introduced.
3) The importance of review writing was realized.
4) A variety of reviews were introduced.

Course Title- CC 1 – Study of Designated Literary Works Part-1, Code- 30404

1) Tarabai Shinde's thoughts were understood from the appointed literary work.
2) Equality is seen in the book Spurush Purlana.
3) Contemporary social system meditation came from the book Shetji Pratap. Understood the nature and specialty of Khankava.
4) Social consciousness developed from the play Shobhayatra.
5) This type of drama was introduced.

Course Title- CC 1 – Fundamentals of Folklore and Marathi Folklore Part -01 Code- 30405

1) Understood the nature of the folklore.
2) The people's guidance and the curriculum found in the public.
3) Folklore decorated the Indian tradition.
4) Lokityalism and other study branches (history, language, psychology, learned that folklore is a global standing area.

Semester 04

Course Title- CC 1 – Writing Skills for Media Part-2, Code- 40401

1) Students understood how to write for a documentary.
2) Understood how to write a screenplay for a film.
3) Various new social media were introduced.
4) The effect of writing on social media on the society was noticed.

Course Title- CC 1 – Research in Literature, Code- 40402

1) Understood the concept of literary research.
2) Understood what qualities should be in the hands of critics.
3) Various stages in the research process came to mind.
4) Understood research methodology and how to plan research.

Course Title- CC 1 – Study of Designated Literary Works Part-2, Code- 40404

1) This type of Marathi travelogue was introduced.
2) America was introduced to this country. The nature and subject matter of the political novel came to mind.
3) This type of literature became known as autobiography.
4) While walking, this autobiography gave a glimpse of Dalit life.
5) This literary work introduced modern literature and its social consciousness,

Course Title- CC 1 – Fundamentals of Folklore and Marathi Folklore Part -02, Code- 40405

1) Understanding the nature of the Marathi folklore.
2) The nature and specialty of the Marathi folk songs. Understanding the nature and type of Marathi folk.
3) It was understood what artistic beauty of Marathi people.
4) Introduced to the Marathi cylinders. The work of Marathi folklore researchers

2. Department of Hindi

Program Outcome (PO)

B.A. Hindi

PO1	Knowing the history of the history of Hindi literature. Understand the origin of Hindi language and its literature.
PO2	Understand the basis of the classification of Hindi literature. Able to understand language fully and use it appropriately.
PO3	Develop a sense of love and social commitment towards the nation among students.
PO4	Have a basic knowledge of Hindi Language which will help the students in their day-to-day life.

Program Specific Outcome (PSO)

B.A. Hindi

Sr. No.	**A student completing the three-year study in Hindi will be able to:**
PSO1	Able to understand language fully and use it appropriately.
PSO2	Understand the concept of history of literature.
PSO3	Understand the art of content writing in Hindi for Media.
PSO4	Understand the basis of the classification of Hindi literature.
PSO5	Introducing the nature of criticism, the usefulness of criticism and the qualities of criticism to students.
PSO6	Let the students know the definitions of language and various variations of language.
PSO7	Understand the origin of Hindi language and its literature.

Course Outcomes (COs) of Bachelor of Arts (BA)

Savitribai Phule Pune University, Pune
F.Y.B.A. (Credit System) from the academic Year 2019-20
Under the Faculty of Humanities
HINDI

Semester I

Core Course- 1A (CC-1A), (3 Credits)
Course Title: Vaikalpik Hindi Prashnpatra- 1A, Course Code: 11091B

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Hindi Language which will help the students in their day-to-day life.
CO 2	Understand basic grammar, conversational Hindi, reading newspaper, short stories, watching movie and creative writing.
CO 3	Develop a sense of love and social commitment towards the nation among students.
CO 4	Developing student's creative power.

Semester II

Core Course- 1B (CC-1B), (3 Credits)
Course Title: Vaikalpik Hindi Prashnpatra- 1A, Course Code: 11092B

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Hindi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of short stories and essays.

Course Outcomes (COs) of Bachelor of Arts (BA)
Savitribai Phule Pune University, Pune
S.Y.B.A. (Credit System) from the academic Year 2020-21
Under the Faculty of Humanities
HINDI

Semester III

Core Course- 1C (CC-1C), (3 Credits)
Course Title: Adhunik Kavya, Kahani thatha Vyavaharik Hindi
Course Code: 23093

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand basic grammar, conversational Hindi, reading newspaper, short stories, watching movie and creative writing.
CO 2	Developing student's ability to taste Hindi novels and Drama.
CO 3	Understand the basic elements of short stories and Poems.
CO 4	Students Know to Hindi story writers and Poets.

Discipline Specific Elective Course- 1A (DSE-1A), (3 Credits)

Course Title: Kavyashastra, Course Code: 23091

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
CO 2	Learn the basic elements of Kavyashastra.
CO 3	Understand and interpret the concept, structure and meaning of poetry.
CO 4	Students learn objectives of literature.

Discipline Specific Elective Course- 2A (DSE-2A) (3 Credits)

Course Title: Madhyayugin Kavya thatha Upanyas Sahitya

Course Code: 23092

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand and interpret the concept, structure and meaning of Madhyayugin poetry.
CO 2	Creating ability to review students based on the varied criteria of Hindi novel.
CO 3	Learn the basic elements of Hindi Novels.

Skill Enhancement Course-2A (SEC-2A) (2 Credits)

Course Title: Anuwad Swaroop evam Vyavahar, Course Code: 23096

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of translation, which will help the students in their life.
CO 2	Have a basic knowledge of English to Hindi, Marathi to Hindi translation, which will help them in their career.
CO 3	Understand the basic elements of translation.
CO 4	Learn to translation effectively.

Modern Indian Language- Hindi (MIL Hindi) (2 Credits)

Course Title: Hindi Bhasha Shikshan, Course Code: 23012

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Hindi grammer, which will help the students in their day-to-day life.

CO 2	Have a basic knowledge of Hindi Language which will help the students in their life.
CO 3	Understand the basic elements of short stories.
CO 4	Understand and apply concepts such as plot, structure, characterization, point of view and narrative technique in the context of short stories

Semester IV

Core Course- 1D (CC-1D), (3 Credits)

Course Title: Adhunik Hindi Vyangya Sahitya thatha Vyavaharik Hindi

Course Code: 24093

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Students Know to Hindi Irony literature writers.
CO 2	Developing student's ability to taste Irony literature.
CO 3	Understand the basic elements of Irony literature.
CO 4	Understand basic grammar, conversational Hindi, reading newspaper, and creative writing.

Discipline Specific Elective Course- 1B (DSE-1B), (3 Credits)

Course Title: Sahitya ke Bhed, Course Code: 24091

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
CO 2	Learn the basic elements of literature.
CO 3	Understand and interpret the concept, structure and meaning of poetry.
CO 4	Students learn types of literature.

Discipline Specific Elective Course- 2B (DSE-2B) (3 Credits)

Course Title: Madhyayugin Kavya thatha Natak Sahitya

Course Code: 24092

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Creating ability to review students based on the varied criteria of Hindi drama.
CO 2	Acquaint with different elements of Drama.
CO 3	Understand the concept and meaning of Madhyayugin poetry.
CO 4	Students Know to Hindi Drama writers.

Skill Enhancement Course- 2B (SEC-2B) (2 Credits)

Course Title: Madhyam Lekhan

Course Code: 24096

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Learn the history, effect, ethics and creative writing in Media.
CO 2	Gather acquaintance with the basic workings in radio, T.V., Cinema etc, Media.

CO 3	Understand the basic workings of television and film industry.
CO 4	Learn the basic elements of Media writing.

Modern Indian Language- Hindi (MIL Hindi) (2 Credits)

Course Title: Hindi Bhasha Shikshan

Course Code: 24012

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Hindi grammar, which will help the students in their day-to-day life.
CO 2	Have a basic knowledge of Hindi Language which will help the students in their life.
CO 3	Understand the basic elements of Songs.
CO 4	Understand and apply concepts such as Subject, structure, point of view and narrative technique in the context of Songs.

Course Outcomes (COs) of Bachelor of Arts (BA)

Savitribai Phule Pune University, Pune

T.Y.B.A. (Credit System) from the academic Year 2021-22

Under the Faculty of Humanities

HINDI

Semester V

Core Course- 1E (CC-1E), (3 Credits)

Course Title: Kathetar Vidhayen, Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basic elements of Sansmaran (Reminiscence) & Rekhachitra (Sketches)
CO 2	Students Know to Hindi Sansmaran (Reminiscence) & Rekhachitra (Sketches) writers.
CO 3	students learn method of writing letters.
CO 4	Acquire appropriate communication skills for effective college learning.

Discipline Specific Elective Course 1C (DSE-1C), (3+1=4 Credits)

Course Title: Hindi Sahitya ka Itihas (Adikal, Bhaktikal, Ritikal)

Course Code:

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the origin of Hindi language and its literature.
CO 2	Understand the basis of the classification of Hindi literature.
CO 3	Understand the importance and basis of the names given to each period of Hindi literature.
CO 4	Understand the concept of history of literature.

Discipline Specific Elective Course- 2C (DSE-2C) (3+1=4 Credits)
Course Title: Bhashavigyan (Samanya Parichay), Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the concept of linguistics.
CO 2	Learn the history of linguistics & Hindi Language.
CO 3	Learn the basic elements of linguistics.
CO 4	Know the types of words, phonetic, Semantics, Morphology etc.

Skill Enhancement Course- 2C (SEC-2C) (2 Credits)
Course Title: Patakatha Lekhan Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basic elements of Script writing.
CO 2	Understand the concept of Script writing.
CO 3	learn Script writing.
CO 4	Know the films & this Script writing.

Semester VI

Core Course- 1F (CC-1F), (3 Credits)
Course Title: Ghazal Vidha aur Patrachar, Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basic elements of Ghazal.
CO 2	Students Know to Hindi Ghazal.
CO 3	students learn method of types of letters.
CO 4	Creating ability to understand Ghazal.

Discipline Specific Elective Course- 1D (DSE-1D), (3+1=4 Credits)
Course Title: Hindi Sahitya ka Itihas (Adhunik Kal-Samanya Parichay)
Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basis of the classification of Hindi literature
CO 2	Understand the Hindi literature.
CO 3	know the history of khadiboli Hindi literature.
CO 4	Understand the importance and basis of the names given to each period of Hindi literature.

Discipline Specific Elective Course-2D (DSE-2D) (3+1=4 Credits)
Course Title: Hindi Bhasha aur Usaka Vikas, Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the concept of language.
CO 2	Identify the dialects of Hindi language family.

CO 3	Learn the basic elements of language.
CO 4	Understand the concept of Devnagari Script.
CO 5	Know the importance of Devnagari Script.

Skill Enhancement Course-2D (SEC-2D) (2 Credits)

Course Title: Sahitya aur Filmantaran, Course Code: -

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basic elements of filming.
CO 2	Understand the concept of literature and filming.
CO 3	learn about film making.
CO 4	Know the literature and this transformation in film.

Course Outcomes (COs) of Bachelor of Commerce

Savitribai Phule Pune University, Pune
F.Y.B.Com. (Credit System) from the academic Year 2019-20
Under the Faculty of Commerce

Additional Hindi

Semester I

Core Course- 1A (117 C), (3 Credits)

Course Title: Vaikalpik Hindi, Course Code: 117 C

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Have a basic knowledge of Hindi Language which will help the students in their day-to-day life.
CO 2	Let the students know the definitions of language and various variations of literature.
CO 3	Develop a sense of love and social commitment towards the nation among students.
CO 4	Know the Hindi story writers and Poets.

Semester II

Core Course- 1B (127 C), (3 Credits)

Course Title: Vaikalpik Hindi, Course Code: 127 C

Sr. No.	**On completing the course, the student will be able to:**
CO 1	Understand the basic elements of s stories and Poems.
CO 2	Develop a sense of love and social commitment towards the nation among students.
CO 3	Let the students know the definitions of language and various variations of literature.
CO 4	Understand the basic elements of s stories and Poems.

- *Additional Hindi is offered only in the first year of the UG programme.*

Department of Hindi

M.A. Hindi

Program Outcome (PO)

1. Students know relation between Society and Literature.
2. Introducing the evolution of epics and discord in the modern era.
3. Information about the elemental nature of modern-day management and liberating poetry.
4. Explain the interrelationship between different aspects of language skills and means of communication and develop their application.
5. Speak and write grammatically correct Hindi.
6. Study the different types of Hindi literature and develop literary taste.
7. To introduce Students Eocene social, political, religious literary and economic conditions perspective Watchtower.

Program Specific Outcome (PSO)

1. Able to understand language fully and use it appropriately.
2. Speak and write grammatically correct Hindi.
3. Cultivate universal human values.
4. Let the students know the definitions of language and various variations of language.
5. Understand the basis of the classification of Hindi literature.
6. To introduce Students Eocene social, political, religious literary, and economic conditions perspective Watchtower.
7. The study of Literature and language can enhance geographical and social mobility.

Course Outcomes (COs) of Master of Arts (M.A.)

Semester I

Course Title- Madhyayugin Kavya, Code- 10501

1. Understand and interpret the concept, structure and meaning of Madhyayugin poetry.
2. Introducing the evolution of epics and discord in the modern era.
3. Information about the elemental nature of modern-day management and liberating poetry.
4. To teach students the elements of poetry, the difference of poetry and word power.

Course Title- Katha Sahitya, Code- 10502

1. Understand and interpret the concept, structure and meaning of Madhyayugin poetry.
2. Developing student's ability to taste Hindi novels.
3. Understand the basic elements of short stories.
4. Students Know to Hindi Novel, story writers.

Course Title- Bharatiy Kavyashastra, Code- 10503

1. Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
2. Learn the basic elements of Bharatiy Kavyashastra.
3. Understand and interpret the concept, structure and meaning of poetry.

Course Title- Hindi Patrakarita, Code- 10504

1. Students Know to Hindi Patrakarita.
2. Understand and interpret the concept, structure and meaning of Patrakarita.
3. Understand the basic elements of Patrakarita.
4. Students Know the Media and these responsibilities.

Semester II

Course Title- Kathetar Gadya Sahitya, Code- 20501

1. Students Know to Hindi Rekhachitra (Sketches), Essays, Autobiography and Irony (Vyangya) writers.
2. Students Able to Creative writing.
3. Students learn method of Various types of Sahitya writing.

Course Title- Shodh Pravidhi, Code- 20502

1. Students become aware of research methodology.
2. Research vision is developed in the students.
3. Become familiar with new research flows.
4. The research process and dissertation writing skills are developed in the students.

Course Title- Pashchyatya Kavyashastra, Code- 20503

1. Undertake the formal study of literature by engaging in critical reading, appreciation and analysis of texts in an interactive and participatory classroom setting.
2. Learn the basic elements of western poetry.
3. Knowledge of the development of the sequence of western poetry.
4. Creativity, taste and criticism are developed in the students.

Course Title- Shailivigyan evam Saundrashastra, Code- 20504

1. Students Know the Shailivigyan (Stylistics) evam Saundrashastra (Aesthetic).
2. Enable students to deal with highly intellectual and radical content and thereby develop their logical thinking and analytical ability.
3. Aesthetic vision is developed in the students.
4. The ideology of Indian and western thinkers gets introduced.

Semester III

Course Title- Adhunik Kavya, Code- 30501

1. Introducing the trends of modern Hindi poetry to students.
2. To give information for student about modern poetry.
3. Introducing the types of poetry and development of poetry to the Students.
4. To familiarize students with various types of modern poetry.
5. To give information about ‘new poem’.

Course Title- Bhashavigyan, Code- 30502

1. Linguistics parts and various branches introduction to give.
2. To aware the theoretical side of linguistics.
3. Information about the historical development of Indian Arya language.
4. Introducing the word store and grammatical form of Hindi.
5. Explain the usefulness of linguistics in the study of literature.

Course Title- Hindi Sahitya ka Itihas, Code- 30503

1. Understand the origin of Hindi language and its literature.
2. To introduce Students Eocene social, political, religious literary, and economic conditions perspective Watchtower.
3. Understand the basis of the classification of Hindi literature.
4. To aware Aadikalin, Bhaktikalin and Ritikalin major literary trends, representatives of poets and his compositions.

Course Title- Sanhar Madhyam, Code- 30505

1. Understand the basic elements of Sanchar Madhyam (Media) .
2. Learn the history, effect, ethics and creative writing in Media.
3. Gather acquaintance with the basic workings in radio, T.V., Cinema etc, Media.
4. Understand the basic workings of television and film industry.
5. Developing critical views in students.

Semester IV

Course Title- Adhunik Kavita, Code- 40501

1. Introducing the trends of modern Hindi poetry to students.
2. To give information for student about modern poetry.
3. Introducing the types of poetry and development of poetry to the Students.
4. To familiarize students with various types of modern poetry.

Course Title- Hindi Bhasha ka Vikas, Code- 40502

1. Enhance knowledge about Hindi language and historical background.
2. To make students aware of modern Indian Aryans languages and their classification.
3. Classification of Hindi dialects and acquaintance with the region.
4. Give information about the movement of Hindi publicity and dissemination.

Course Title- Hindi Sahitya ka Itihas, Code- 40503

1. Enhance the knowledge of origin of Hindi language and its literature.
2. To introduce Students Eocene social, political, religious literary, and economic conditions perspective Watchtower.
3. Understand the basis of the classification of Hindi literature.
4. To aware Modern major literary trends, representatives of poets and his compositions.

5. Enable to Historical perspective develops.

Course Title- Bharatiy Loksahitya, Code- 40504

1. To introduce students to Indian folk literature.
2. To make students aware about the nature of folk literature and the importance of its study.
3. To disseminate information about various genres of folk literature and to explain its broadness in public life.
4. Explain the importance of folk literature and motivating students for its special study.
5. Explain the difference between folk literature and literature.

3. Department of English

Program Outcome (PO)

PO1	Human Values and Ethics: Understanddifferent value systems including one's own, understand the morality, ethics and acceptance and pursuance.
PO2	Understanding of Social issues and interactions, Effective Communication,Environmental Awareness.
PO3	Life-long Learning, Critical Thinking
PO4	Knowledge of Digital platforms, Field andProject Work, Research Attitude, Verbal skills

Program Specific Outcome (PSO)

PSO-01	To learn to use the English language effectively
PSO-02	To familiarize with Western literature and culture
PSO-03	To familiarize with literary history, critical terms and concepts
PSO-04	To read and appreciate major English writers and their works
PSO-05	To learn literary interpretation in tune with contemporary needs.

Course Outcome (CO)

Savitribai Phule Pune University (Choice Based Credit System-70:30-Pattern)
(w. e. f- 2021-2022) F. Y. B. A- English
Under the Faculty of Humanities
F. Y. B. A Compulsory English (w. e. f. 2019-2020)
(Choice Based Credit System) 70:30-Pattern
(70-Semester-End Exam & 30-Internal Evaluation)

Prescribed Text: Literary Gleam: An Anthology of Prose and Poetry (Board of Editors Orient BlackSwan)

Semester- I

Course Objectives:

1. To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English
2. To instill human values and develop the character of students as responsible citizens of the world
3. To develop the ability to appreciate ideas and think critically
4. To develop communication skills
5. To know the grammatical units

Course Outcomes:

1. Students can read selected prose and poetry in English
2. Students can build up their personality
3. Students will communicate effectively in English
4. Students can learn grammatical units

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ E-learning/ Visual Presentation

Semester- II

Course Objectives:

1. To influence students to read important prose and poems
2. To develop reading skills
3. To make students responsible at all levels
4. To enhance employability of the students by developing their linguistic competence and communicative skills
5. To revise and reinforce structures already learnt in the previous stages of learning.

Course Outcomes:

1. Students can know the importance of literature
2. Students reading skills will be improved
3. Students will become responsible citizens in their life
4. Students will be able to communicate in English

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

F. Y. B. A. Optional English
(w. e. f. 2019-2020)
(Choice Based Credit System)
70:30-Pattern

Semester-I:

Prescribed Text: *Initiations: Minor Literary Forms & Basics of Phonology* (Board of Editors-Orient BlackSwan)

Course Objectives:

1. To introduce students to the basics of literature and language and develop an integrated view about language and literature in them.
2. To familiarize them with minor forms of literature in English and help them to appreciate the creative use of language in literature
3. To introduce students to the basics of phonology of English so that they can pronounce better and speak English correctly.

Course Outcomes:
1. Students will be familiar with the basics of English language and literature.
2. Students will understand the minor forms of literature and appreciate the creative use of language in literature.
3. Students will be familiarized with the basics of phonology.

Semester-II:
Prescribed Text: *Initiations: Minor Literary Forms & Basics of Phonology* (Board of Editors- Orient BlackSwan)
Course Objectives:
1. To expose students to the basics of phonology of English to pronounce better and speak English correctly.
2. To prepare students to go for a detailed study and understanding of literature and language.
3. To introduce the concept of syllable, word stress and different standards of pronunciation.
4. To enhance the job potential of students by improving their language skills.

Course Outcomes:
1. Students will understand the basics of phonology and start speaking in English with correct pronunciation.
2. Students will start a detailed study of language and literature.
3. Students will understand the concept of syllable, word stress and standards of pronunciation.

S. Y. B. A.
Compulsory English (Core Course-CC)
(Choice Based Credit System-70:30-Pattern)
(w. e. f- 2020-2021) (03 Credit Course)

Semester-III:
Prescribed Text: *Panorama: Values and Skills through Literature (*Board of Editors- Orient BlackSwan)
Course Objectives:

1. To expose students to the best examples of literature in English and to contribute to their emotional quotient as well as independent thinking.
2. To inculcate universal human values in students through best pieces of literature in English

3. To improve students' communication skills by developing ability to use right words in the right context.

Course Outcomes:
1. Students will be familiar with the best examples of literature in English.
2. Students will understand and learn the universal human values through literature.
3. Students will improve their communication skills.

Semester-IV:
Prescribed Text: *Panorama: Values and Skills through Literature (*Board of Editors- Orient BlackSwan)
Course Objectives:
1. To familiarize students to the best pieces of literature in English and to contribute to them emotional quotient as well as independent thinking.
2. To enhance employability of the students by developing their basic soft skills.
3. To revise and reinforce the learning of some important areas of grammar for better linguistic competence.

Course Outcomes:
1. Students will be familiar with best pieces of literature and also start thinking independently.
2. Students will learn the basics and develop their soft skills.
3. Students will learn grammar and develop their linguistic competence.

S. Y. B. A.

Savitribai Phule Pune University (Choice Based Credit System-70:30-Pattern)
(w. e. f- 2021-2022) S. Y. B. A- English
Under the Faculty of Humanities

S. Y. B. A. Skill Enhancement Course-SEC-1A
(Old General English-G-2) (Choice Based Credit System-70:30-Pattern)
(w. e. f- 2020-2021) (03 Credit Course)
Title of the Paper: Advanced Study of English Language

Semester III
Prescribed Text: Linguistics: An Introduction- (Ed. Board of Editors, Orient BlackSwan)
Course Objectives:
1. To familiarize students with the various components of language.
2. To develop overall linguistic competence of the students.
3. To introduce students to some advanced areas of language study.

4. To prepare students to go for detailed study and understanding of language.

Course Outcomes:

1. Students get familiarized with the various components of language
2. Students get developed overall linguistic competence
3. Students know some advanced areas of language study
4. Students understand language in details

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

Semester IV

Course Objectives:

1. To introduces students with the all components of language.
2. To enhance linguistic competence of the students.
3. To familiarize students to some advanced areas of language study.
4. To prepare students to go for detailed study and understanding of language.

Course Outcomes:

1. Students get introduced with the components of language
2. Students develop their linguistic competence
3. Students understand advanced areas of language
4. Students study language in details

Pedagogy: Lectures / Critical Analysis /Visual Presentation / Assignments / Test/ e-learning

Discipline Specific Course (DSC-1A)
Appreciating Drama

(Choice Based Credit System-70:30- Pattern)

(w. e. f- 2020-2021)

(03 Credit Course)

UNIT –I Theory of Drama

UNIT –II A Midsummer Night's Dream by William Shakespeare

Course Objectives:

1. To introduce Drama as a major form of literature
2. To introduce minor forms of Drama
3. To acquaint and enlighten students regarding the literary and the performing dimensions of drama
4. To acquaint and familiarize the students with the elements and the types of Drama
5. To introduce students to the Renaissance theatre and its conventions

6. To introduce students to the works of Shakespeare

Semester-IV Title of the Paper: Appreciating Drama

UNIT-I

Arms and the Man by George Bernard Shaw

UNIT-II

The Fire and the Rain by Girish Karnad

Course Objectives:

1. To encourage students to make a detailed study of a few sample masterpieces of English Drama from different parts of the world
2. To develop interest among the students to appreciate and analyze drama independently
3. To enhance students' awareness regarding aesthetics of Drama and to empower themto evaluate drama independently
4. To introduce students to modern drama
5. To acquaint students with the Indian theatrical traditions
6. To develop the ability to interpret the works of Indian English writers

S. Y. B. A.
Discipline Specific Course (DSC-2A)
(Old Special Paper-II)
(Choice Based Credit System-70:30-Pattern)
(w. e. f- 2020-2021) (03 Credit Course)
Title of the Paper: Appreciating Poetry

Semester-III:

Prescribed Text: *Mirage: An Anthology of English Poetry* Ed. Board of Editors, Orient Blackswan

Course Objectives:

1. To familiarize and understand the basic terminology in poetry criticism (i.e. the terms used in appreciation and critical analysis of poems)
2. To encourage students to make a detailed study of a few sample masterpieces of English poetry
3. To enhance students' awareness in the aesthetics of poetry and to empower them to read,

appreciate and critically evaluate the poetry independently.

Course Outcomes:

1.Students will understand the basic terminology in poetry criticism.

2. Students will start applying this terminology in appreciation and critical analysis of poems.

3. Students will start making a detailed study of poems.

Semester-IV:

Prescribed Text: *Mirage: An Anthology of English Poetry* Ed. Board of Editors, Orient Blackswan

Course Objectives:

1. To introduce and familiarize the best masterpieces of English poetry in terms of appreciation and critical analysis of poems.
2. To encourage students to make a detailed study of a few sample masterpieces of English poetry
3. To create students' awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate the poetry independently.

Course Outcomes:

1. Students will be familiar and start appreciation and critical analysis of a few masterpieces of English poetry.
2. Students will make a detailed study of poems.
3. Students will start understanding of the aesthetics of poetry and critically analyse poems independently.

Skill Enhancement Course-(SEC-2A)

(w.e.f-2020- 2021)

Title of the course: "A Certificate Course in Skill Development"

[Two Credit Course (2x15=30 Hours)]

Semester- III

Course Objectives:

1. Enhancing the skill of using English for everyday communication

2. To acquaint the students with the verbal and nonverbal communication
3. To create opportunities to access exposure of speaking in various contexts
4. To acquaint and familiarize the students with soft skills
5. To develop interest among the students to interact in English

Semester IV

Title of the course: "A Certificate Course in Skill Development"

Course Outcomes:

1. Developing skills among students to meet requirements of work places
2. Promoting participatory learning among students
3. Learning enhancement through interactive sessions
4. To create self-confidence among students to express themselves
5. To prepare students to face challenges in the context of globalization

Savitribai Phule Pune University (Choice Based Credit System-70:30-Pattern)(w. e. f- 2021-2022)

T. Y. B. A- English

T. Y. B. A. Compulsory English
(CC-Core Course- 03 Credit)
SEMESTER-V

Prescribed Text: Exploring New Horizons (Ed-Board of Editors- Orient BlackSwan)

Course Objectives:

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.
b) To enable students to become competent and effective users of English in real life situations.
c) To contribute to the overall personality development of the students.
d) To make students able to impart knowledge of soft skills

Course Outcomes:

a) Students get familiarized with some excellent pieces of prose and poetry
b) Students became the effective users in real life situation
c) Students get developed their personality
d) Student use soft skills in their real life situations

Pedagogy: Lectures / Assignments / Test/ e-learning / Visual Presentation / Critical Analysis

SEMESTER-VI

Prescribed Text: Exploring New Horizons (Ed-Board of Editors-Orient BlackSwan)
Course Objectives:
a) To develop students communication skills
b) To instill humanitarian values and foster sympathetic attitude in the students.
c) To train the students in practical writing skills required in work environment.
d) To impart knowledge of some essential soft skills to enhance their employability.

Course Outcomes:

a) Students develop their communication skills
b) Student develop their human values and sympathetic attitude
c) Students learn writing skills
d) Students acquire some required soft skills

Pedagogy: Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Skill Enhancement Course
(SEC 1-C & SEC 1-D) (Old G-3)
(w. e. f. 2021- 2022)
SEMESTER-V

Title of the Paper: Enhancing Employability Skills (Credit-3)
Prescribed Text- Aspirations: English for Careers (Board of Editors- Orient Black Swan)
Course Outcomes:
1. To get the awareness of career opportunities available to them.
2. To identify the career opportunities suitable to them.
3. To understand the use of English in different careers.
4. To develop competence in using English for the career of their choice.
5. To develop communication skills

Course Objectives:

1. Students get aware of career opportunities in various fields
2. Students identify suitable career opportunities
3. Students' use of English in different careers.
4. Students get developed competence in using English for the career
5. Students develop their communication skills

Pedagogy: Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

SEMESTER-VI

Prescribed Text- Aspirations: English for Careers (Board of Editors- Orient Black Swan)

Course Outcomes:

1. To use proper body language in effective communicative skills
2. To enhance skills required for their placement.
3. To use English effectively in the career of their choice.
4. To exercise verbal as well as nonverbal communication effectively for their career.

Course Objectives:

1. Students use proper body language in effective communicative skills.
2. Students get enhance skill for their placement
3. Students use effective English in the career
4. Students use verbal and nonverbal communication in their career

Pedagogy: Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Discipline Specific Elective (DSE-1C& DSE-1D) (Old S-3)
(w. e. f. 2021- 2022)
Title of the Paper: Appreciating Novel
(Credit-3+1=4)

Semester – V(DSE-1C):

Title of the Paper: Appreciating Novel

Course Outcomes:

1. To expose students to the basics of novel as a literary form.
2. To introduce them to the historical development and nature of novel.
3. To create awareness about different types and aspects of novel in students.
4. To develop literary sensibility and sense of cultural diversity in students
5. To expose and introduce students to some of the best examples of novel.

Learning Outcomes:

1. Students will be familiar with novel as a literary form.
2. Students will understand the historical development and nature of novel.
3. Students will be aware about the various types and aspects of novel.

Semester – VI(DSE-1D):

Title of the Paper: Appreciating Novel

Course Outcomes:

1. To develop literary sensibility and sense of cultural diversity in students.
2. To expose and introduce students to some of the best examples of novel.
3. To encourage them to make a detailed study and analyze the novels prescribed.
4. To develop students' interpretative abilities and enhance their analytical skills.

Learning Outcome:

1.Students will learn about literary sensibility and sense of cultural diversity in the society.

2. Students will be familiar and study the masterpieces of novels.

3. Students will start analyzing and appreciating novels independently.

Discipline Specific Elective (DSE-2C & DSE-2D) (Old S-4) (w. e. f. 2021- 2022)

Title of the Paper: Introduction to Literary Criticism(Credit-3+1=4)

Semester V – Introduction to literary criticism, classical, neoclassical, romantic and Victorian criticism

Learning objectives.

1) To introduce students to the basics of literary criticism
2) To make them aware of the nature and historical development of criticism
3) To make them familiar with the significant critical approaches and terms
4) To encourage students to interpret literary works in the light of the critical approaches
5) To develop aptitude for critical analysis

SEMESTER-VI – Modern criticism, new criticism, critical terms and concepts

Course outcomes

1) Make students aware of recent trends in literary criticism
2) Students are introduced to advanced critical tools and concepts
3) Develop the ability to come forward with original response to literary texts
4) Encourage critical thinking
5) Promote interpretative skills.

Skill Enhancement Course (SEC 2-C & SEC 2-D)
(w. e. f. 2021- 2022)
Title of the Paper**: *Mastering Life Skills and Life Values***

[Two credit Course (2X15= 30 Clock Hours)]

SEMESTER-V (SEC 2-C)

Course Content: Life skills

1. Meaning and Nature of Life Skills
2. Importance of Life Skills

3. Problem Solving and Decision-making skill
4. Critical and Creative Thinking Skill
5. Interpersonal skills: Understanding and Cooperating with Others
6. Management of Stress and Emotions

Course objectives:

1. To equip the students with the social skills
2. To train the students interpersonal skills
3. To build self-confidence and communicate effectively
4. To Encourage the students to think critically

SEMESTER-VI (SEC 2-D)

Course content : Life Values

1. Meaning and Nature of Values
2. Importance of Human Values
3. Moral Values
4. Ethical Values
5. Professional Values
6. Aesthetic Values

Course outcome

1. Students learn stress management and positive thinking
2. Students develop leadership qualities
3. students become aware about universal human values
4. Personality development of students

Program Outcome (PO) of MA English

1. Broadens students' awareness of the general culture of different places where English is used and enhances their appreciation and understanding of culturally diverse societies.
2. Provides ample opportunities for learners to develop their creativity, sharpen their critical and analytical skills, and enhance their language proficiency.
3. The study of Literature has many practical advantages—it provides ample opportunities for learners to develop their creativity, sharpen their critical and analytical skills, and enhance their language proficiency.
4. The rationale for studying Literature in English is that it primarily reinforces the guiding principles for education reform outlined in the UGC guidelines.
5. Cultivate universal human values

Program Specific Outcome (PSO) of MA English

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1. The intellectual, aesthetic and emotional qualities which learners develop by studying literature in English prepare them for further study or work, particularly in areas such as publishing and the media, where creativity, critical thinking and intercultural understanding are highly appreciated.
2. The Literature component in English Curriculum provides learners with learning experiences to appreciate and enjoy literature, encourage self-expression and creativity, enhance their critical and analytical skills, improve their competence in the use of English, develop their cultural understanding as well as positive values and attitudes conducive to lifelong learning, and prepare them for further study or work.
3. Studying/teaching the Literature component in English curriculum are to enable learners to appreciate and enjoy a wide range of literary or creative texts and to appreciate other related cultural forms.
4. The curriculum helps learners to develop a humanistic outlook on life. Through a close interaction with literary/creative works, which portray a range of human thoughts, emotions and experiences, learners gain knowledge and an understanding of the nature of human existence and of the world.
5. The study of Literature and language can enhance geographical and social mobility.

Course Outcome (CO) of MA English
MA English Part I

Paper 1.1: English Literature from 1550 to 1798

1) Introduce students to the major movements and figures of English Literature through a study of selected literary texts/pieces published during the period prescribed for study.
2) Enhance learners' literary sensibility and their emotional response to literary texts and to help them understand the thematic and stylistic preoccupations of the writers prescribed for study.
3) Enable them to critically examine the writers' thematic concerns and to point out the (in) significance of such concerns in the postcolonial context.
4) Help students recognize the distinctive ways in which the writers differed, in their ideological positions, from their counterparts belonging to different ages
5) Provide learners some basic information about England's political, social and cultural developments during the period prescribed for study.

Paper 1.2: English Literature from 1798 to the Present

1) Introduce students to the major movements and figures of English Literature through a study of selected literary texts/pieces published during the period prescribed for study.
2) Enhance learners' literary sensibility and their emotional response to literary texts and to help them understand the thematic and stylistic preoccupations of the writer prescribed for study.
3) Enable students to critically examine the writers' thematic concerns and to point out the (in) significance of such concerns in the postcolonial context.
4) Help learners recognize the distinctive ways in which the writers differed, in their ideological positions, from their counterparts belonging to different ages
5) Enable learners to critically assess the 'universal' values that writers tend to project in their writings.

Paper 1.3: Contemporary Studies in English Language

1. Introduce students to the basic tools essential for a systematic study of language
2. Acquaint students with the basic concepts and issues in linguistics
3. Introduce them to various sub-disciplines of linguistics
4. Initiate them into some of the theoretical assumptions underlying language and to enable them to apply the acquired linguistic skills in real life situations
5. Acquire linguistic skills.

Paper – 1.4: Literary Criticism and Theory

1) Introduce students to the nature, function and relevance of literary criticism and theory
2) Introduce learners to various important critical approaches and their tenets
3) Enable students to deal with highly intellectual and radical content and thereby develop their logical thinking and analytical ability
4) Develop sensibility and competence in them for practical application of critical approach to literary texts

MA English Part II

Paper 3.1: Indian Writing in English (Core Paper)

1) Introduce students to the various phases of the evolution in Indian Writing in English. (i. e. the major movements and figures of IWE)
2) Make students aware of Indian cultural ethos and indigenous belief systems through the study of major literary works in the domain of Indian English literature.
3) Acquaint learners with the writings of different Indian writers and help them appreciate the variety and diversity of Indian Writing in English.
4) Expose students to the corpus of Indian Writing in English, and explain the sociopolitical and cultural contexts in which the works were written and received.
5) Develop the ability of students to critically examine and restate their understanding of literary texts

Paper-3.3: Cultural Studies

1. Introduce students to the newly established field of cultural studies, its concerns and approaches
2. Orient students towards interdisciplinary approach and analysis of cultural issues including literature and language
3. Steer students towards new possibilities of analysis that can relate them to their surroundings
4. Create awareness about the recent developments in humanities and social sciences that cover several issues from philosophical to everyday matter
5. Instill tolerance, sense of equality and love for humanity in students.

Paper-3.4: Indian Literatures in English Translation

1) Introduce students to some of the significant Indian regional language writers of various periods and to their works.
2) Acquaint students with the major ancient, medieval and modern literary movements in India and their influence on literature.
3) Enable students to compare the features and peculiarities of Indian societies, cultures and languages.
4) Encourage students to undertake translations from Indian languages
5) Familiarize students with translation theories

Paper-3.6: American Literature

1. Provide students a general introduction to the major texts that led to the evolution of American literature as an independent branch of literature in English.
2. Familiarize students with the issues and problems America has gone through and how they find expression in her literature.
3. Help students gain a broad historical view of the entire period from the time of the early settlers, through the westward movement to the contemporary period.
4. Provide students a general idea about the religious, socio-political, literary and cultural movements in America.
5. Acquaint students with some of the major conflicts, struggles and movements that are closely connected with the experiences of a group of people struggling establish their space within the nation.

4. Department of History and AIHC&A

Program Outcome (PO)

PO1. Human Values and Ethicality: Understand different value systems including one's own, understand the morality, ethics and acceptance and pursuance.

PO2 Understanding of Social issues and interactions, Effective Communication, Environmental Awareness.

PO3 Life-long Learning, Critical Thinking

PO4 Knowledge of Digital platforms, Field and Project Work, Research Attitude, Oral Examination.

Program Specific Outcome (PSO)

B. A. in History

PSO-01 To learn history based on facts and evidences

PSO-02 To develop a logic and critical thinking of historical facts, events and interpretations.

PSO-03 To understand causes and effects of events.

PSO-04 To have a conceptual knowledge of multiculturalism.

PSO-05 To learn applied aspects of History including skill-oriented knowledge.

COURSE Outcome (CO)

Savitribai Phule Pune University, Pune

F.Y.B.A. (Credit System) from the academic Year 2019-20 Under the Faculty of Humanities

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 Course Objectives:

1. The history of Early India is a crucial part of Indian history. It is a base for understanding the entire Indian history.
2. 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.
3. 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.

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

Course 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.
3. It attempts to highlight the consequences of the foreign invasions, particularly on the polity, economy, society and art and architecture.
4. The attempt is also to instill the spirit of enquiry among the students.

Savitribai Phule Pune University, Pune

S.Y.B.A. (Credit System) from the academic Year 2020-21 Under the Faculty of Humanities

HISTORY

Core Course-I (CC- 1C)

Semester -III-History of the Marathas: (1630-1707)

Course 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 analyses 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.

Discipline Specific Elective Course (DSE-1A) 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. Analysis's socio - political and economic changes during medieval period
4. Estimate the foreign invasion and the achievement of rulers

Discipline Specific Elective Course (DSE-2A) 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.

Discipline Specific Elective Course (DSE-2A) 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.

Skill Enhancement Course (SEC-1A) – (2 Credits) Semester III- 1) Brahmi Script

Course Objectives:

1. This paper is designed to introduce the students to the Brahmi Script, which is essential to understand the history of Early India.
2. It will enable students to read and understand the Brahmi Script and thus they will be able to
3. unfold Early Indian History.
4. It will get students acquainted with the primary sources such as Ashokan Pillars, some of the Buddhist texts, written in Brahmi script.

Course Outcome:

1. Students will learn to understand the Brahmi Script so as to understand important sources of the history of Early India.
2. They will be able to read and understand the Brahmi Script.
3. **They will have an overall understanding of the history of Early India.**

Skill Enhancement Courses (SEC 2 A) – (2 Credits) Semester III- 2) Art and Architecture of Early India (From 3000 B.C. to 12th Century A.D.)

Course Objectives:

1. This paper is designed to introduce the students to the emergence and development of art and architecture in early India.

2. It will enable students to understand the process of development of art and architecture in the early Indian history on the socio-religious and economic background.
3. It will get students acquainted with the emergence and changes in the styles of the art and architecture during the early India up to the 6th century B.C.E.

Course Outcome:

1. Students will get an overall understanding of the emergence and development of the art and architecture in Early India.
2. They will understand the emergence of the Pottery, Terracotta figures, Ornaments, Town Planning, preparation of seals and coins.
3. They will have an understanding of the art and architecture in early India.

Skill Enhancement Courses (SEC-2 A) – (2 Credits) Semester III -3) Digital Documentation

Course Objectives:

1. This paper is designed to introduce the students to the Digital Documentation.
2. It will enable students to prepare files in various formats; to scan photos, documents and to edit videos, images.
3. It will get students acquainted with the process of online archiving.

Course Outcome:

1. Students will get an overall understanding of the process of digital documentation.
2. They will learn to scan photos, documents and to edit videos, images.
3. They will be able to prepare documents in various digital formats.

Skill Enhancement Courses (SEC 2 A) – (2 Credits) Semester III-4) 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.

Core Course-I (CC- 2C)

Semester -IV- History of the Marathas: (1707-1818)

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.

Pedagogy: Lectures/Visual presentation/ Role play/ Critical analysis/Assignments/Tests/Quiz/ e-learning

Discipline Specific Elective Course (DSE-1B) 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)

Discipline Specific Elective Course (DSE-2 B) 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.

Discipline Specific Elective Course (DSE-2 B) Semester -IV- History of West Asia

Learning Objectives:

1. The course is designed to enable students to understand the history of Modern East Asia.
2. It will acquaint students with the notable events in contemporary Asia.
3. It will orient students to understand the economic transition in Asia during 20th century and the impact of all this on world politics.
4. It will enable students to understand the history of West Asian countries.

Learning Outcomes:

1. It will enable students to develop the overall understanding of the West Asian countries.
2. The students will get acquainted with the modernization of Turkestan, Arab Nationalism and the Arab-Israel Conflict.
3. It will enhance their perception of the developmental policies of the Asian Countries.
4. It will enable students to understand the significance of the West Asian countries in the Modern World.

Pedagogy: Lectures/Visual presentation/ Role play/ Critical analysis/Assignments/Tests/Quiz/ e-learning

Skill Enhancement Course (SEC 2B) – (2 Credits) Semester IV- 5) Modi Script

Course Objectives:

1. This paper is designed to introduce the students to the Modi Script.
2. It will get students acquainted with details of the Modi Script.
3. It will enable students to understand Maratha History in detail.

Course Outcome:

1. Students will get an overall understanding of the Modi Script.
2. They will be able to know the history of the Marathas.
3. They will be able to read and write in Modi Script.

Skill Enhancement Courses (SEC 2B) – (2 Credits)
Semester IV-6)Medieval Indian Arts and Architecture(1206 To 1857)
Course Objectives:

1. Students will get an overall understanding of the development of the Medieval Art and Architecture.
2. They will understand the changing patterns of the Art and Architecture during the Medieval India.
3. They will have an understanding of the impact of Persian Art on Islamic Art and Architecture in Medieval India.

Skill Enhancement Courses (SEC 2 B) – (2 Credits) Semester IV- 7) Popular Indian Culture

Course Objectives:

1. This paper is designed to introduce the students to the Popular Culture in India.
2. It will enable students to understand Visual Arts, Performances, Audio-Visual expressions, Fairs, Festivals and Rituals.
3. It will get students acquainted with the development of Popular Indian Culture.

Course Outcome:

1. Students will get an overall understanding of the the Popular Culture in India.
2. They will understand the Visual Arts, Performances, Audio-Visual expressions, Fairs, Festivals and Rituals.
3. They will have an understanding of the importance of Popular Indian Culture.

Skill Enhancement Courses (SEC 2 B) – (2 Credits) Semester IV- 8) 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.

Savitribai Phule Pune University, Pune

T.Y.B.A. (Credit system) From the Academic Year 2021-22 Under the Faculty of Humanities

Core Course 3 :(3 Credit)

Semester V: Course Title: - Indian National Movement (1885-1947) Learning (Course) 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.

Pedagogy: Lectures/Visual Presentation/Critical Analysis/ Assignments /Test/ e-learning

Core Course 3: **History of Civilization (3 Credit)**
Semester V Course Title: - World Civilization and Heritage (Part I)

Course Objectives:

1.To Introduce students to the various concept and theories of World Civilization. 2.To study the types of Stone Culture and its various aspects.

3.To acquaint the students with rise and growth of Ancient Civilization in West Asia. 4.To understand about Ancient Civilization of China and its various parts.

5.To enable the students to understand the Ancient Indian Civilization and its town planning, socio- economic, religious life as well as Vedic Civilization.

Course Outcomes:

1. Students will be aquanaut with the knowledge of how the Human Civilization process was start
2. The History of World Civilization course will be developing the curiosity in students the rise and growth of Ancient Civilization in world.
3. This curriculum develops the attitude of contemporary students towards the World Civilization.

Core Course 3: **History of Civilization (3 Credit)**
Semester V Course Title: - World Civilization and Heritage (Part I)

Course Objectives:

1.To Introduce students to the various concept and theories of World Civilization. 2.To study the types of Stone Culture and its various aspects.

3.To acquaint the students with rise and growth of Ancient Civilization in West Asia. 4.To understand about Ancient Civilization of China and its various parts.

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2. The History of World Civilization course will be developing the curiosity in students the rise and growth of Ancient Civilization in world.
3. This curriculum develops the attitude of contemporary students towards the World Civilization.

Pedagogy: Lectures/Visual Presentation/Critical Analysis/ Assignments/ Test/ e-learning

Discipline Specific Elective Courses (DSE-4D)- (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.

Pedagogy:

Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning.

Discipline Specific Elective Courses (DSE-4D)- (3) Credit Semester -V Course Title- Constitutional Development in India (1773-1853)

Course Objectives:

1. To Introduce the students to evolution of Constitution of India.
2. To study Factors and Situations that shaped the Constitutions.

Course Outcomes:

1. Students will understand evolution of Constitution of India.
2. Student will learn factors and conditions that contributed to constitution of India
3. Students will understand the Democratic Processes and thereby strengthen Democracy.

Pedagogy:

Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Discipline Specific Elective Courses (DSE-4D)- (3) Credit
Semester -V Course Title- Constitutional Development in India (1773-1853)

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Course Outcomes:

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3. Students will understand the Democratic Processes and thereby strengthen Democracy.

Pedagogy:

Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Skill Enhancement Courses (SEC 2 C) – (2 Credits) Semester V -SEC -:10 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.

Skill Enhancement Courses (SEC 2 C) – (2 Credits) Semester V -SEC: 11 Course Title: - Museology

Objectives:

1. To acquaint the students with the rise and development of Museum.
2. To impart to the students an understanding of the importance of material history through Museum.
3. To encourage the students to collect the material or sources of History for local, regional and National History through Museum.
4. To enable the students to collect Various Articles as a tool of History.

Course Outcomes:

1.The Students will understand the Concepts of Museum ad learn the basic Principles of Museology

2 The Students will gain Comprehensive Knowledge of the Process of Cringe and Conserving Museum of objects

Core Course 4 (3 Credit)
Semester VI: Course Title: - India After Independence- (1947-1991)
Course 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.

Core Course 4 History of Civilization (3 Credit)
Semester VI Course Title: -World Civilization and Heritage (Part II)

Course Objectives:

1. To Orient students about Western Classical Civilization of Greece and Roman.
2. To introduce students to the Arab Civilization and its various aspects.
3. To study various Concept and theory's in Medieval Europe.
4. To understand the Renaissance- Reformation Movement and impact of various Past Civilizations.
5. To create motivation and curiosity among the students through the age of discoveries in Ancient and Medieval times.

Course Outcomes:

1. Students will be oriented about Western Classical Civilization of Greece and Rome.
2. Students will be introduced to Arab Civilization and its impact on world Civilization.

Discipline Specific Elective Courses (DSE-3C) -(3 Credit)
Semester –VI, Course Title: Applied History

Course Outcome :

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. the about learn will Student's 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.

Pedagogy: Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Discipline Specific Elective Courses (DSE-4D)- (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.

Pedagogy:
Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Discipline Specific Elective Courses (DSE-4D)- (3) Credit Semester -VI, Course Title- Constitutional Development in India (1858-1950)

Course Objectives:
1. To Introduce the Students to evolution of Constitution of India.
2. To Study factors and Situations that shaped the Constitutions.

Course Outcomes:
1. Student will understand evolution of Constitution of India.
2. Student will learn factors and conditions that contributed to Constitution of India
3. Students will understand democratic processes and thereby strengthen Democracy

Pedagogy:
Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

Skill Enhancement Courses (SEC 2 D) – (2 Credits Semester VI SEC: 12 Course Title: - Heritage Management

Course Objectives:

1. To understand the introduction of Heritage Management to the Students
2. To get an Opportunity to seek self-employment to the students

Course Outcomes:

1. Student will understand over all process of Heritage Management
2. Student will get the knowledge about scope and the fact of Heritage Management.
3. The students will enable to understand about legal and commercial framework of Heritage

Skill Enhancement Courses (SEC 2 D) – (2 Credits) Semester VI: 13 Course Title: - Archaeology

Course Objectives:

1. This paper is designed to introduce the students to the Key Concepts and practical approaches in Archaeology, highlighting their applications in interpreting the Human past.

2. It will enable students to understand the definition, aims and scope of Archaeology and its development as a discipline will be introduced to the students.
3. The nature of the Archaeological record and the unique role of science in Archaeology is explained to the students.
4. Legislation related to Archaeology and the role of Archaeology in Heritage Management is also discussed in this course.

Course Outcomes:

1. Students will learn to understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past.
2. They will be able to understand the nature of the archaeological record and the unique role of science in archaeology.
3. They will have an overall understanding of the Archaeology.

Skill Enhancement Courses (SEC 2 D) – (2 Credits Semester VI -SEC:14 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.

FYBA
Ancient Indian History, Culture and Archaeology
(Three Credit course)
SEMESTER FIRST
An Introduction to Prehistory and Protohistory of India
Course Outcome:

a) At the end of course student will be able to use extensive information on Archaeology in order to study and analyze the archaeological context.
b) Student will acquire fundamental logical skills to study the subject Archaeology.
c) Student will learn the basic periodization and chronology of archaic past.

d) Student will acquire the necessary skills related with methods of collection of Archaeological data useful for interpretation.
e) Student will get a knowledge of Pre and Protohistory which will be helpful for the advanced and specialized studies in Archaeology.

SEMESTER SECOND

An Introduction to Ancient History of India.
Course Outcome: -

a) At the end of course student will be able to use the large amount of information on Ancient Indian History in order to study and analyze the historical context.
b) Student will obtain fundamental logical skills for the further study of the subject Ancient History and Culture.
c) Student will learn the basic periodization and chronology of Ancient Indian History.

Ancient Indian History, Culture and Archaeology SYBA (credit system) from the academic year 2020-2021
Under the faculty of Humanities Core Course I (CC-1)
(Three Credit course)

SEMESTER III
CC-1 : Political and Legal institutions in Ancient India
Course Outcome:

a) Student will learn the basic concepts of Political and legal institutions in Ancient India.
b) At the end of course student will be able to apply, conceptual information of Ancient Indian Institutions in order to study and analyze the historical c o nt ex t..
c) Student will acquire fundamental logical skills to study Political and Legal institutions in Ancient India.
d) Student will acquire the necessary skills related to the methods of collection of historical data useful for interpretation.
e) Student will get a knowledge of Politico-legal institutions which will be helpful for the advanced and specialized studies in Ancient Indian History and Culture.

Core Course 2 (CC-2) (Three Credit course) SEMESTER IV
CC- 2 Socio-economic Institutions of Ancient India.
Course Outcome: -

f) Student will learn the basic concepts of Social and Economic institutions in Ancient India.

g) At the end of course, student will be able to apply conceptual information of Ancient Indian Institutions in order to study and analyze the historical context.
h) Student will acquire fundamental logical skills to study Socio-economic institutions of Ancient India.
i) Student will acquire the necessary skills related to the methods of collection of historical data useful for interpretation.
j) Student will get knowledge of Socio-economic institutions which will be helpful for the advanced and specialized studies in Ancient Indian History and Culture.

Core Course 3 : (3 Credit)) Semester - V

Course Title :- CC-3(3) : Religion and Philosophy in Ancient India

Course Outcome:

a) Student will learn the basic concepts of religious and philosophical institutions in Ancient India.
b) At the end of course student will be able to apply, conceptual information of religious and philosophical institutions in Ancient India in order to study and analyze the historical context.
c) Student will acquire fundamental logical skills to study religious and philosophical institutions in Ancient India.
d) Student will acquire the necessary skills related to the methods of collection of historical data useful for interpretation.
e) Student will get a knowledge of Religion-philosophical texts which will be helpful for the advanced and specialized studies in Ancient Indian History and Culture.

Core Course 4 : (3 Credit)) Semester - VI

Course Title :- CC-4 (3) Ancient Heritage and Heritage Management

Course Outcome: -

1. Student will learn the basic concepts of Ancient Heritage and Heritage Management.
2. At the end of course student will be able to apply conceptual information of Ancient Indian Institutions in order to study and analyze the historical context.
3. Student will acquire fundamental logical skills to study of heritage and its management.
4. Student will acquire the necessary skills related to the methods of collection of historical data useful for interpretation in Heritage and its management.
5. Student will get knowledge of heritage which will be helpful for the advanced and specialized studies in ancient heritage.

M.A. HISTORY

Semester 1: Core Paper No. 4

Semester 1: Core Paper No. 4 Course Title: HS: CC - 1: History: Theory and Method

Objectives

The paper is designed to provide adequate conceptual base, bring better understanding of history and its forces, help interrogate existing paradigms and challenge the outdated, help in developing critique, help research in terms of formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of Interdisciplinary approach.

Course Title: HS: CC - 2: Evolution of Ideas and Institutions in Early India

Objectives

The course intends to provide an understanding of the social, economic and institutional bases of early India. It is based on the premise that an understanding of early Indian history is crucial to understand Indian history as a whole.

Course Title: HS: CC 3: Maratha Polity

Objectives

The purpose of the course is to study the administrative system of the Marathas in an analytical way, to acquaint the student with the nature of Maratha Polity, to understand basic components of the Maratha administrative structure, to enable the student to understand the basic concepts of the Maratha polity.

Semester 1: HS: EC: 1: History of Deccan – Pre History to Chalukyas

Objectives:

The paper is designed to make the student aware of the background of the history of the region. A broad survey of the pre-history which connects with the early history is aimed at emphasizing the continuities and changes in terms of geographical and cultural conditions created by the rulers.

Semester 2: Core Paper No. 4

Credits: 4

Course Title: HS: CC - 4: Approaches to History

Objectives

The paper is designed to make the student aware about the various approaches to the discipline of History. With its roots in Indian history, the paper provides a historical review of the salient approaches that have developed over the last few centuries. It is hoped that the student will become aware of the idea that the same set of historical source materials can be interpreted in different ways depending upon the approach one takes in studying them.

Course Title: HS: CC - 5: Ideas and Institutions in Medieval India

Objectives

The course examines the nature of medieval Indian society, economy, state formations, and the main religious currents of the time. It is seen as a continuation of the course on ancient India. It is also seen to be crucial to an understanding of the nature of society, and the problems of the challenge to that society, through colonialism, at a later stage.

Course content

Course Title: HS: CC - 6: Socio-Economic History of the Marathas Objectives

The purpose of the course is to study socio-economic history of the Marathas in an analytical way, to acquaint the student with the components of social structure and their functions, to understand the relationship between religion, caste, customs, traditions, class in 17th and 18th century Maratha Society, to enable the student to understand aspects of economic life, to trace the determinants of changes in social and economic life.

Course Title: HS: EC - 09: Marathas in 17th and 18th Century: Power Politics

Objectives

The course intends to study the role played by the Marathas in the context of India, the changing nature of Maratha State, to understand and analyse the Maratha expansionism and its significance in various spheres.

SEMESTER III

Semester III: Core Paper No. 7 Credits :4

Course Title: Cultural History of Maharashtra Objectives:

This paper is designed to help the student situate and interpret the cultural manifestations across historical memory which have contributed to the creation of the geopolitical region of Maharashtra.

Course Title: Intellectual History of Modern Worl

Objectives:

The paper is seen as a prerequisite for understanding the concepts that are used in history, to acquaint the student with the intellectual activity that played an important role in shaping events; the transition from medieval to modern times.

Course Title: Economic History of Modern India

To acquaint the student with structural and conceptual changes in Indian economy after coming of the British, to make them aware of the exploitative nature of the British rule, to help them understand the process of internalization by Indians of new economic ideas, principles and practices.

Course Title: East Asia: Japan (1853-2000)

Objectives: The course is designed to help the students to know Japanese history especially after the opening up of Japan; Japan's modernization and its impact; post World War II developments and Japan's role in world politics.

5. Department of Economics

Program Outcome (PO)

PO1 Students would have knowledge about the nature and classical theories of Economic development.

PO2 Students would be able to apply economic theories and concepts to contemporary social issues, as well as formulation and analysis of policy and recognize the role of ethical values in economic decisions.

PO3 Understanding of Economic issues and interactions, Effective Communication and Economic Environmental Awareness

PO4 Knowledge of digital Platform Field and Project Work Research Attitude Oral Examination

Program Specific Outcome (PSO)

PSO -01 To learn economics based on facts and evidences

PSO -02 To develop a logic and critical thinking of economics

PSO -03 To understand causes and effects of Indian Economy

PSO -04 To have Conceptual Knowledge of multiculturalism

PSO -05 To learn applied aspect of Economics including killed oriented Knowledge.

Course Outcome (CO)
B. A.

1. FYBA

Semester – I & II

Indian Economic Environment–I & II

1. Ability to develop an understanding of the economic environment and the factors affecting economic environment.
2. Ability to develop awareness on the various new developments in the different sectors of economy – agriculture, industry, services, banking, etc.
3. Ability to compare and contrast Indian Economy with other world economies.
4. 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.

2. SYBA

Semester – III & IV

I. Financial System-I & II

1. The Student got the knowledge of various financial and non-financial institutions.
2. They students get the knowledge of Indian financial system for better financial decision making

II. Micro Economics- I & II

1. The Students understood of basic theories of micro economics and their application.
2. The students got the Knowledge of conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle.
3. Understand monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.

III. Macro Economics- I & II

1. Know about the basic differences between microeconomics and macroeconomics
2. Know about the various concepts of national income
3. Student understood the various theory of keynesian macroeconomic theoretical framework of consumption and investment functions.

Skill Enhancement Course (SEC-1A)

IV. Basic Concept of Research Methodology

1. Demonstrate his/her understanding of sampling methods and the ability to use collection of data
2. Identify the appropriate sample techniques for different kinds of research questions
3. Identify the appropriate source of data in relation to the collection of research data.
4. Able to classify and present the collected data in the form of graph, bar diagram, chart etc

3. TYBA

Semester – V & VI

I. G3 Indian Economic Development – I & II

1. Student Learn the basic concept and indicators of Economic Development.
2. Understand the concept and indicators of Human Development.
3. Explain the characteristics of Developing and Developed Countries.

II. S3 – International Economics – I & II

1. Learn the basic concepts of International Economics and International Trade.
2. Knowledge about the theories of international trade.
3. The Student understood the issues relating to Terms of Trade and Balance of Payment.
4. It gives them an opportunity to understand and analyses the real-world trade related issues.

III. S4 –Public Finance – I & II

1. Learn the basic Concepts of Public Finance.
2. Students got the Information about Public Revenue, Public Expenditure and reasons for rising Public Expenditure.
3. The Student understood types of Public Debt and its effects.
4. Given the limited resources and unlimited demand and desires, the subject helps students understand how government should use the funds of the public.

Skill Enhancement Course (SEC-1A)

IV. Business Management –I & II

Students got the information about management of Business.
Knowledge about the Business is planning and decision makin

B. COM.

1. F.Y.B.Com.

SEM. -I & II

I. (113) Business Economics (Micro) I & II

1. Analyze the decisions taken by firms and households due to scarcity of resources.
2. Calculate the elasticity of demand and supply.
3. Describe the laws and various concepts in production and costs.
4. Evaluate the various microeconomic theories
5. Examine the causes of scarcity
6. Understand basic theories, concepts of micro economics and their application

II. (115 B and 125 B) Banking and Finance [Fundamentals of Banking] –I & II

1. The Banking and financial system in India.
2. About commercial banks and its products.

3. How to build customer relationship in banking sector.
4. The modern banking services e.g. e-banking, embanking and internet banking

2. S.Y.B.Com.

Sem.-III & IV

I. (233) Business Economics (Macro)-I & II

1. Identify the different cost and benefits of production and consumption.
2. Evaluate the market approach to environmental problems.
3. Explain the direct and indirect benefits of education.
4. Differentiate between the types of resources.

II. (236 B and 246 B) Banking & Finance Special Paper I [Indian Banking System – I & II]

Student understands:

1. Role and structure of Indian banking system.
2. Various types of banks and their special features.
3. The reforms and other developments in the Indian Banking.
4. The functions and role of Reserve Bank of India.

T.Y.B.Com.

Sem.-V

I. (353) Indian & Global Economic Development

Student understands:

1. The process of integration of the Indian Economy with other economics of the world.
2. The emerging issues in policies of India's foreign trade.
3. The present status of the Indian Economy.
4. A new approach to the study of the Indian and Global Economy

II. (355 B) Banking & Finance – II [Financial Markets and Institutions in India]

1. Students would have knowledge regarding money market, capital market, stock exchange i.e. Indian Financial System which is the backbone of the country.
2. Student understands the Financial Markets and its various segments.
3. Student understands the operations and developments in financial markets in India.
4. Student understands the functioning and role of financial institutions in the Indian Economy.
5. Student understands Organization Functions & Working of Regulatory Institutions in Financial Market.

III. (3423) Banking & Finance – III [Banking Law and Practices in India I & II]

1. Student understands Banking Law and Practice in relation to the Banking system in India.
2. Student understands the legal aspects of Banking transactions and its implications as Banker and Customer.

3. Student understands the Banking Law and Practice in India.

M.A. Economics

Program Outcomes (PO)

PO1 Prepare students to develop critical thinking to carry out investigation about various socio-economic issues objectively while bridging the gap between theory and practice.

PO2 Equip the student with skills to analyses problems, formulate a hypothesis, evaluate and validate results and draw reasonable conclusions thereof.

PO3 Prepare students for pursuing research or careers that provide employment through entrepreneurship and innovative methods.

PO4 Prepare students to develop own thinking /opinion regarding current national or international policies and issues

Program Specific Outcome (PSO)

PSO -01 Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc.

PSO -02 Ability to recognize apply and analyze concept and theories in public economics

PSO -03 Ability to understand the concept of international economics

PSO -04 Ability to analyze evaluate the subject with reference to various aspect of agrarian economies

PSO -05 Ability to analyze and demonstrate knowledge of the basic theories in macro economics

PSO-06 Ability to apply the concept of economic growth and development

PSO-07 Ability to evaluate and examine subject areas in economics explores possibilities of research

PSO-08 Ability to develop examine various topic under demography

PSO-09 Ability to develop an understanding of the economics of environment

PSO-10 Ability to develop an understanding of the Labour

Dept. of Economics
M.A
1. M.A. -I (Sem. I)
I. (EC-1001) Micro Economics Analysis-I
1. It wills familiar students on creating an understanding among students on the basic reasoning of Micro Economics.
2. It will make students aware about how various economic agents behave optimally given the scare Micro economic resource and other constraints.
3. Students are better able to understand various economic issues and applied part of the Micro economics.

II. (EC-1002) Public Economics-I
1. The students would learn of the feature the federal structure and financial relationship among them.
2. The course would develop the analytical ability of students to distinguish between beneficial and detrimental effects of a government policy and their effect on macroeconomics framework of an economy.

III. (EC-1003) International Trade
1. Students would know the country's position regarding international trade, payments and foreign exchange.
2. The students would learn the methods regarding improvement in terms of trade, international debt and balance of payments positions.
3. Students would know about the policies regarding increase in exports, to deal with international institutions and to maintain relation with other countries. Since globalization and international relations can increase the rate of growth and solve domestic problems like inflation, unemployment and value of currency etc.

IV. (EC-1004) Agricultural Economics
1. Course provides knowledge agricultural background, farm and agro business activities, agriculture finance and management.
2. It introduces learner applied part of economics instead theoretical, which deals with allocation of land under various crops, specialization, diversification and other policy amplifications.
3. Course offer relevant production and various techniques to understand agro production, cost benefit analysis and enhance learner to make frontier-production function at least cost.

2. M.A.-I (Sem. II)

I. (EC-2001) Micro Economics Analysis- II

1. A comprehensive knowledge of Micro Economics will empower students to explain the social reality with better arguments and optimum solutions.
2. It will familiarize the students with different types of economic models.
3. Students will get to know the different market structure.
4. It will provide information to the students about the distribution of income and wealth.

II. (EC-2002) Public Economics- II

1. It will helps students to critically analyses the fiscal reforms and policy choices of the government in developed and developing countries.
2. To know about the preparation of budgeting and its utilization for Indian economy.

III. (EC-2003) International Finance

1. Appreciate the functioning of the international financial markets and its management and the determination of different exchange rates
2. Understand the way the foreign exchange market and the derivatives markets and the capital markets function using futures, options and swaps

IV (EC -2004) Labour Economics

1. The paper makes students aware of different theories on labour and employment from the point of view of economic research.
2. It provides a detail analysis on the latest development of labour market in developing countries with reference to India.

3. M.A.-II (Sem. III)

I. (EC-3001) Macro Economics Analysis -I

1. It will demonstrate knowledge of laws of supply and demand and equilibrium.
2. Students will be familiar about a clear picture of circular flow model.
3. Students will be able to explain the concept of opportunity costs, trade –off and benefits of Macroeconomics.

II. (EC-3002) Growth & Development - I

1. Students would be acquainted with the various perspectives of economic growth and its relevance.
2. Students would become familiar with factors affecting economic growth and development.
3. Students would understand the conceptual bases of income measurement, physical quality of life index, poverty, inequality and development gap and role of various institutions in economic growth and development.

III. (EC-3003) Research Methodology

1. Develop a conceptual understanding and foundation related to Research Methodology and its various approaches.
2. Identify and provide a logical reasoning in the formulation of research problem, and the problems involved in systematic explanation of phenomenon.
3. Develop Research Design based on multifarious approaches with quantitative techniques for economic data analysis.

IV. (EC-3004) Demography

1. To make the students aware of the importance of population in economic development and the various theories that explains the growth of population in a country. The paper also enlightens the students on the quantitative and the qualitative aspects and characteristics of the population through various demographic techniques.
2. Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.

4. M.A.-II (Sem. IV)

I. (EC-4001) Macro Economics Analysis II

1. Students will learn the concept of fiscal and monetary policies and their effect on economy.
2. It will help the students to apply supply and demand models to analyze responses of market to external events.
3. It will help students to describe ISLM model.

II. (EC-4002) Growth and Development –II

1. Students would have knowledge about the nature and classical theories of development. Students would be able to apply economic theories and concepts to contemporary social issues, as well as formulation and analysis of policy and recognize the role of ethical values in economic decisions.
2. Students would learn the key tools to analyze agricultural economies, with an eye towards understanding a wide array of impacts, from agricultural policies to trade and climate change and what the role agriculture and industry have in economic development.

III. (EC-4003) Research Project

The purpose of the dissertation is to encourage students to undertake independent economic research and to foster research-related skills, which should benefit future study and employment.

1. Demonstrate specialist knowledge in the area of their research.
2. Demonstrate the ability to initiate research and to formulate viable research questions.

3. Demonstrate the capacity to design, conduct and report sustained and original research.
4. Demonstrate the ability to evaluate and synthesize research-based and scholarly literature.
5. Present research findings and argument in a suitably structured and sequenced thesis that conforms to protocols of academic presentation and research practice.
6. Demonstrate the ability to critique literature and conduct analyses at a Masters level.

IV. (EC-4004) Economics of Environment

Apply economic principles for applied environmental issues.
Select and apply appropriate economic techniques to solve environmental problems and measure value of environmental goods.

Course Outcomes
M. Com.

1. M.Com.-I (Sem. I)

I. (116) Central Banking

1. Student understands the functions of Reserve Bank of India.
2. Student understands the Regulation and supervision of Reserve Bank over Commercial banks
3. Student understands the monetary policy and its instruments.

II. (115) Legal Framework of Banking

1. Student understands the Legal framework in which the Indian banking is working today.
2. Student understands the latest developments in the field of banking law.
3. Student understands the Modem banking practices.
4. Student understands the How to establish a link between the legal provisions and the practical aspects of banking.

M.Com. -I (Sem. II)

I. (202) Industrial Economics

Student understands:

1. The basic concepts of Industrial Economics.
2. The significance and problems of Industrialization.
3. How to impact of Industrialization on Indian Economy.
4. Various measures adopted by the Indian Government to improve industrial productivity, efficiency, and reduce industrial Imbalance.

II. (216) Monetary Policy

Student understands:

1. RBI's role in Money supply measures and monetary management.
2. Various Instruments of monetary policy.
3. Development and promotional role of the Reserve Bank of India in Financial Inclusion and its implications

III. (315) Banking Law and Practices

Student understands:

1. The importance and functioning of Prevention of Money Laundering Act, 2002.
2. How to develop Banker customer relationship. 3. Hi-tech banking and Mergers and Acquisition in banking sector.

2. M.Com.-II (Sem. III)

I. (315) Foreign Exchange

Student understands:

1. Various aspects of foreign exchange market and financing of foreign trade.
2. The Exchange rate mechanism and factors affecting exchange rates.
3. Development in foreign exchange market.

II. (316) International Finance

Student Understands:

1. The concepts of international financial market.
2. The functioning of International monetary system.
3. Operations and importance of international Financial Institutions.
4. Various theories in exchange rate behavior.

3. M.Com. -II (Sem. IV)

I. (402) Industrial Economic Environment

Student Understands:

1. The basic concepts of Industrial Finance.
2. The major issues, growth & present position of IT Industries in India.
3. The labor policy reforms and its impact on industries.
4. Major environmental issues in the process of industrialization.
5. How to effects New Economic Policy on Indian industry

I. (415) Recent Advances in Banking and Finance

Student understands:

1. Various new developments in banking industry.
2. Various technological developments in Banks.
3. Recent Developments in Money Market and capital Market.

I. (416) Project Work

Student understands:

1. The basic knowledge of research methodology.
2. How to choose topic for research project and write qualitative project report.
3. How to develop analytical and interpretable skill.
4. Various problems in the field of banking and finance.

6. Department of Geography

Program Outcome (PO)

1. To acquaint the utility and application of geography in different region and environment.
2. Study Tour, Field visits, Project work, City Survey, Oral Examination.

Program Specific Outcome (PSO)

1. To introduce the Students to the Basic Concept in Geography.
2. To Develop theoretical, Applied and Computational Skills.
3. Environmental Awareness amongst the Students.
4. To acquaint the students to past, present and future utility and potentials of resources at regional, national and global level.
5. To explain the elementary and essential principles of practical work of geography**.**

Course Outcome (CO)

F.Y.B.A (Credit System) Form the Academic Year 2019-2020

Semester-I .Gg.110 A-Physical Geography

Objectives:

I. To introduce the students to the basic concepts in Physical geography.

II. To introduce latest concept in Physical geography

III. To acquaint the students with the utility and application of Physical geography indifferent regions and environment.

IV. IV. To make the students aware about Earth system (Lithosphere, Atmosphere, Biosphere and Hydrosphere)

Course Outcome:

Upon successful completion of this course, the student will be able to:

i) The geographical maturity of students in their current and future courses shall develop.

ii) The student develops theoretical, applied and computational skills.

Semester-II . Gg- 110 B - Human Geography

Objectives:

I. To introduce the students to the basic concepts in Human geography.

II. To introduce latest Introduction to Human Geography.

III. To acquaint the students with the utility and application of Human geography

in different regions and environment.
IV. To make the students aware about Population, Settlements, Agriculture.

Course Outcome:

Upon successful completion of this course, the student will be able to:
i) The geographical maturity of students in their current and future courses shall develop.
ii) The student develops theoretical, applied and computational skills.

Savitibai Phule Pune University, Pune
F.Y.B.Com (Credit System) Form the Academic Year 2019-2020
Elements of Commercial Geography-I. Sem.I.
Objective:-

1. To Create the awareness of about Commercial Geography, Nature, Scope, and Developments.
2. To introduce the students to the basic concepts Economic Actitives of Man.
3. To Understand the meaning, and types of Resources.
4. To study the meaning, characteristics and advantage and Disadvantage of Population.

Elements of Commercial Geography-II. Sem.II.
Objective:-

I. To introduce the students to the basic concepts Meaning of Industries, Role of Industrial Development, Factors affecting on Industrial Location, and Industrial Theory.
II. To introduce latest Trade and Transport, Way of Transportation.
III. To make the students aware about Meaning Tourism , Role of Tourism, data representation of cartographic techniques/ Diagram.

Savitibai Phule Pune University, Pune
S.Y.B.A (Credit System) Form the Academic Year 2020-2021

S.Y.B.A. Geography (G2) Semester III
Name of Subject: Environment Geography- I, Subject Code: Gg.210 (A)
Objectives:

1. To create the awareness about dynamic environment among the student.
2. To acquaint the students with fundamental concepts of environment geography for development in different areas.
3. The students should be able to integrate various factors of Environment and dynamic aspect of Environmental geography.

4. To make aware the students about the problems of environment, their utilization and conservation in the view of sustainable development

S.Y.B.A. Geography (S1), Semester III

Name of Subject: Geography of Maharashtra, Subject Code: Gg.220 (A)

Objectives:

1. To acquaint students with Geography of our State.
2. To make students aware of the magnitude of problems and prospects in Maharashtra.
3. To help students understand the inter relationship between the subject and the society.
4. To help students understand the recent trends in regional studies

S.Y.B.A. Geography (S2), Semester III

Name of the Subject: Scale and Map Projection, subject Code: Gg. 201 (A)

Practical Geography-I

Objectives of Course:

1. To introduce the basic concepts in Practical Geography
2. To enable students to use various Scales and Projection Techniques in Geography.
3. To acquaint students with the utility of various Projections in Geographical knowledge.
4. To explain the elementary and essential principles of practical work in Geography.

Course Outcome:

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

1. Develop practical skill and use of map scale and projection.
2. To make students aware of the new techniques, accuracy and skills of map making.

S.Y.B.A. Geography (G2) Semester IV

Name of Subject: Environment Geography- II, Subject Code: Gg.210 (B)

Objectives:

1. To create awareness about dynamic environment among the students.
2. To acquaint students with the fundamental concepts of Environment Geography.
3. To acquaint students about the past, presents and future utility and potentials of natural resources.
4. To make aware students about the problems of environment, its utilization and conservation in the view of sustainable development.

S.Y.B.A. Geography (S1), Syllabus for Semester IV
Name of Subject: Geography of Maharashtra, Subject Code: Gg.220
(B)Objective :
1. To make students aware about the Agriculture problems and prospects of Maharashtra.
2. To understand the population distribution and settlement pattern in Maharashtra.
3. To understand the concept of rural development.
4. To understand the prospectus in Tourism activity in Maharashtra and the role of MTDC and Role of MIDC in industrial development in rural area of Maharashtra.

S.Y.B.A. Geography (S2), Syllabus for Semester IV
Name of the Subject: Cartographic Techniques, Surveying and Excursion / Village / Project Report subject Code: Gg. 201 (B)

Objectives of Course:
1. To introduce the students to the basic and contemporary concepts in Cartography.
2. To acquaint the students with the utility and applications of various Cartographic Techniques.
3. To introduce the latest concepts regarding the modern cartography in the field of Geography.
4. To explain the elementary and essential principles of practical work in Geography.

Course Outcome:
After the successful completion of the course, the students will be able to:
1. Develop practical knowledge and application of cartographical techniques.
2. To make students aware of the new techniques, accuracy and skills of Map Making.

Savitibai Phule Pune University, Pune
S.Y.B.Sc. (Credit System) Form the Academic Year 2020-2021
Under the Faculty of (Faculty of Science & Technology)
S.Y.B.Sc.
Environmental Geography –I (Paper-I) Course No: GG 231

Objectives:
i. To create environmental awareness amongst the students.
ii. To familiarize the students with fundamentals concepts of Environmental Geography.
iii. To acquaint the students to past, present, and future utility and potentials of resources at regional, national and global levels.

iv. To enable the students to understand dynamics of man–environment relationship in various region of the world.

Geography of Maharashtra (Physical)-I (Paper II) Course No: GG 232
Objectives:
i. To appraise the students with salient features of the Maharashtra State.
ii. To familiarize the students with the climatic characteristics of the State.
iii. To make the students aware of the geographic problems of Maharashtra in the view of sustainable development.

Surveying –I (Paper III) S.Y.B.Sc. Syllabus, Semester-III
Objectives:
i. To acquaint the students with the principles of surveying, its importance, and its utility in the Geographical study.
ii. To familiarize the students with the basic aspects of linear, vertical and angular measurements of surveying.
iii. To understand the importance, basic principles and uses of GPS in surveying.
iv. To identify sources and types of errors occurs during surveys.

S.Y.B.Sc. Semester-IV, Environmental Geography- II (Paper-I)
Course No: GG-241
Objectives:
i. To introduce the methods and assessments of the impact on the environment amongst the students.
ii. To acquaint the students with environmental protection laws, acts, planning, and management.
iii. To appraise the students with various indigenous environmental conservation measures.
iv. To make aware the students about various programs and policies carried out in the regional and global scale.

S.Y.B.Sc. Semester-IV Geography of Maharashtra (Human)-II (Paper-II)
Objectives:
i. To acquaint the students with the relationship between man and environment in Maharashtra State.
ii. To familiarize the students with the agricultural pattern, problems and prospects in the state.
iii. To study and understand the industrial sector, spatial distribution, development and problems faced within the state.
iv. To know the status of transport and communication in Maharashtra state.

S.Y.B.Sc. Semester-IV, Surveying – II (Paper-III)
Objectives:
i. To acquaint the students with the principles of surveying, its importance and utility in the Geographical study.
ii. To familiarize the students with the basic aspects of linear, vertical, and angular measurements of surveying.
iii. To introduce the importance, basic principles, and uses of GPS in surveying.
iv. To identify sources and types of errors occurs during surveys.

Savitibai Phule Pune University, Pune
T.Y.B.A (Credit System) Form the Academic Year 2021-2022
T.Y.B.A. Semester V Geography of Tourism- I CC1E
Objectives:
1) To understand the history of Tourism
2) To introduce the students to the basic concepts in Tourism Geography.
3) To understand the types of Tourism
4) To gain knowledge different aspects of Tourism Geography

Geography of India -I DSE 1 C
Objective:
1. To acquaint the students with geography of our Nation.
2. To make the student aware of the magnitude of problems and Prospects at National level.
3. To help the students to understand the inter relationship between the subject and the society.
4. To help the students to understand the recent trends in regional studied.
Semester V, Practical Geography- I (Techniques of Spatial Analysis) DSE- 2 C.
Objective:
1. To introduce the basic concepts and techniques of Geographical Analysis.
2. To introduce the students with SOI Toposheets and acquire the Knowledge of Toposheet interpretation.
3. To introduce the students with Weather Maps and acquire the Knowledge of its interpretation.
4. To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it .
5. To acquaint students with the spatial and structural characteristics of Practical Geography.
6. To explain the elementary and essential principles on field of practical work.

Semester V-SEC 2 C
Value/Skill based Course Research Methodology - I
Objectives:
1. To develop the understanding of the basic concept of research
2. To develop the understanding of the basic framework of sampling and data collection
3. To develop the understanding of various sampling methods and techniques

Geography of Tourism- II CC1F
Objectives:
1. To understand the history of Tourism
2. To introduce the students to the basic concepts in Tourism Geography.
3. To understand the types of Tourism
4. To gain knowledge different aspects of Tourism Geography.

Semester VI Geography of India -II DSE1 D
Objective:
1. To acquaint the students with geography of our Nation.
2. To make the student aware of the magnitude of problems and Prospects at National level.
3. To help the students to understand the inter relationship between the subject and the society.
4. To help the students to understand the recent trends in regional studied.

Semester VI
Practical Geography- II (Techniques of Spatial Analysis, Surveying and Excursion /Village/ Project Report) DSE- 2 D.
1. To introduce the students to the basic concepts Geographical, Data & its. Basic Analysis
2. To Calculation of Central Tendency, & Dispersion
3. To understand Testing and Application of Hypothesis
4. Understanding of the conducting survey Field Excursion /Village Survey / Project Report

Semester VI SEC 2 D Value/ Skill based Course
Research Methodology – II
Objectives:
1. To identify various sources of information for data collection.
2. Understanding of the conducting survey on various issues and develop the Report writing skill of students.

Department of Geography
Program Outcome (PO)- PG

1. **To acquaint the utility and application of geography in different region and environment.**
2. **To understand the history of Tourism.**
3. **Study Tour, Field visits, Project work, City Survey , Oral Examination.**

Program Specific Outcome (PSO)- PG

1.To learn Geography based on the Observation.
2.To Develop theoretical , Applied and Computational Skills.

Course Outcome (CO)-PG

M.A-I (Credit System) Form the Academic Year 2020-2021
Semester-I .GGUT-111.Principles of Geomorphology
Objectives:
I. To introduce the students to the basic concepts in Introduction to Geomorphology .
II. To introduce latest concept in Geomorphology and Tectonics.
III. To acquaint the students with the utility and application of in Geomorphology different
regions and environment, Weathering, mass movement Processes.
IV. To make the students aware about Fluvial, Glacial, Coastal, Aeolian Processes.
Course Outcome:
Upon successful completion of this course, the student will be able to:
i) The geographical maturity of students in their current and future courses shall develop.
ii) The student develops theoretical, applied and computational skills.
Semester-I .GGUT-112.Principles of Climatology
Objectives:
I. To introduce the students to the basic concepts in Climatology .
II. To introduce concept in Structure and composition of atmosphere. .
III. To acquaint the students with the utility and application of in climatology (Temperature, Atmospheric pressure and winds)
Course Outcome:
Upon successful completion of this course, the student will be able to:

i) The geographical maturity of students in their current and future courses shall develop.
ii) The student develops theoretical, applied and computational skills.

Semester-I .GGUT-113.Principles of Economic Geography
Objectives:
I. To introduce the students to the basic concepts in Introduction to economic Geography. .
II. To introduce the Economic Activities.
III. To acquaint the students with the utility and application of Resources, Economic Development, Transport and Communication , Trade etc
IV. To make the students aware about Contemporary issues.
Course Outcome:
Upon successful completion of this course, the student will be able to:
i) The geographical maturity of students in their current and future courses shall develop.
ii) The student develops theoretical, applied and computational skills.
Semester-I .GGUT-114.Principles of Population and Settlement Geography.
Objectives:
I. To introduce the students to the basic concepts in Introduction to population and settlement Geography..
II. To introduce concept of Population distribution, population growth and trend, Population Structure and Characteristics.
IV. To make the students aware about the Concept of Rural Settlement and urban settlement , patterns, Urban Hierarchy etc.
Course Outcome:
Upon successful completion of this course, the student will be able to:
i) The geographical maturity of students in their current and future courses shall develop.
ii) The student develops theoretical, applied and computational skills.
Semester-I .GGUP-115. Practical in Physical and Human Geography.
Objectives:
I. To introduce the students to the basic concepts in Drainage Network. Drainage Basin , Relief analysis.
II. To introduce concept of Climatic Element, climatic classification, Crop combination, measures of network structure. Population indices and projection, etc.
IV. Field Visit and Report Writing.

Course Outcome:

Upon successful completion of this course, the student will be able to:

i) The geographical maturity of students in their current and future courses shall develop.

Semester-II .GGUT-121.Geoinformatics –I

Objectives:

I. To introduce the students to the basic concepts in GIS, Definition, Potential of GIS, data base, Data Models, Structuring of spatial data, data analysis etc.

II. To introduced in GIS Application, Digitizers Processes.

Semester-II .GGUT-122.Coastal Geomorphology

Objectives:

I. To introduce the students to the basic concepts in Introduction of coaste and coastal systems and Shore zones, Coastal Processes, sea Level, Coastal Sediment, Coastal Environment, Applied coastal Geomorphology.

II. To introduce concept of Applied Coastal Geomorphology.

Semester-II .GGUT-126.Fluvial Geomorphology

Objectives:

I. To introduce the students to the basic concepts in Introduction to Fluvial Geomorphology, definition, drainage network , stream number, Drainage basin hydrology, open channel morphology, hydraulic geometry, etc.

II. To introduce the process about sediment transport, fluvial erosion, erosional depositional, Fluvial Depositional.

Semester-II .GGDT -130.Geography of Tourism

Objectives:

I. To introduce the students to the basic concepts in Introduction to geography of Geography of Tourism Definition, tourist , tourism, classification, factors of tourism, Role of accommodation in tourism.

II. To explain the major Indian tourism such as Hill Stations, Beaches, Historical Centres, National Parks, Waterfall.

Semester-II .GGDP -133 Practical in Map Projections

Objectives:

I. To introduce the students to the basic concepts in Map Projection,

II.Construction of Projection Zenithal polar Gnomonic Projection, Zenithal Polar Stereographic Projection and its Properties and use of Projection.

Semester-II .GGUP -134 , Practical of statistical Techniques for Geography.

Objectives:

I. To introduce the students to the basic concepts Introduction to statistical Techniques in Geography, Descriptive statistics, etc.

II.Fieldwork and data Collection, collection of primary and secondary data by fieldwork or field visit.

M.A-II (Credit System) Form the Academic Year 2020-2021

Semester-III .GGUT-235 Geoinformatics –II

Objectives:

I. To introduce the students to the basic concepts Introduction to Remote Sensing, EMR and EMS, Platforms and satellites, Sensors, Resolution , Image Interpretation , Aerial Photography.

Semester-III .GGUT-236 Geographical Thoughts

Objectives:

I. To introduce the students to the basic concepts historical Development of Geographical Thought. A brief account of Greek, Roman, Indian, Arab, German, French, British, American. Etc.

II.To Introduced the concept about Applied Geography,

Semester-III .GGUT-237 Tropical Geomorphology

Objectives:

1.To introduce the students to the basic Introduction to Tropics, Tropical Weathering, Duricursts and Laterites, Denudation in Tropics etc.

II. To introduce the Processes about Tropical Planation such as formation and types of planation surface and landform development in tropics.

Semester-III .GGDP-241 Practical in Geoinformatics

Objectives:

1.To introduce the students to the basic of Aerial Photography , Visual Interpretation of LISS, PAN, Wifs Image.

II. GIS Operation using Open Source GIS Software.

Semester-III .GGUT-243 Watershed Management

Objectives:

1.To introduce the students to the concept of watershed management , Characteristics of Watershed , Hydrological Process in Watershed,

II. To introduce Application of Remote Sensing and GIS IN Watershed Management.

Semester-III .GGUP-245 Practical In Geomorphology

Objectives:

I.To introduce the students to the concept of Geomorphological Mapping, USE of Symbols, Interpretation of the map in terms of forms and Processes, hill slope analysis.

II. Field Survey, Laboratory work, GPS Survey.

Semester-IV .GGUT-249 Geography Of India.

Objectives:

I.To introduce the students basic concept of India, Such as location, Extent, Physiography, Drainage System, climate, soil, Agriculture , Industries, Population etc.

Semester-IV .GGUT-250- Oceanography

Objectives:

I.To introduce the students basic concept of Oceanography, Defination, Meaning, origin of ocean basin , the ocean floor, properties of seawater.

Semester-IV .GGUT-251- Research Methodology

Objectives:

I.To introduce the students basic concept of Research Methodology , Research Design, Sampling Design, Method of Data Collection , Data Analysis , Research ethics , plagiarism and funding Agencies.

Semester-IV .GGUT-252- Geography of Soil

Objectives:

I.To introduce the students basic concept Soil, Soil Formation , Soil Profile, Components , Classification of Soil, Problems related to soil and soil conservation.

Semester-IV .GGDP -257- Interpretation of Topographical Maps and GPS Survey

Objectives:

I.To introduce the students basic concept Study of topographical maps, Interpretation of S.O.I Toposheets, GPS Survey of Village.

Semester-IV .GGUT -258- Geography of World

Objectives:

I.To introduce the students basic concept of the earth, Regional geography , world contemporary issues, 21st century challeneges and opportunities in the World .

7. Department of Psychology and Logic

Programme Outcome (PO)

B.A. program in the college is recognized by Savitribai Phule Pune University, Pune, and follows the syllabus prescribed by the university. English is a compulsory subject for our B.A program. Apart from this, our students are allowed to choose any of the one subject from the cluster of Marathi, Hindi, English, Economics, History, Psychology and Geography for special level and to choose any of the two subjects from the cluster of Marathi, Hindi, English, Economics, History, Psychology, Geography, Logic and Ancient Indian History, Culture and Archeology for general level B.A. program in our college meets the standards prescribed by general humanities education.

PO1 Cognitive skills: Students will be better able to appreciate different Cognitive skills, or cognitive abilities, that include attention, remembering, reasoning, problem-solving, thinking, reading and learning.

PO2 Understanding of Social issues and related coping skills, Importance of interpersonal relations, To acquire effective communication skills, Importance of organizational behavior and group dynamics

PO3 Employability: On graduating, the students will be eligible for employment in education area, psychological service centers, social service centers, industrial and organizational sector ect. Students become employable in government and non-governmental organizations. They will also be able to appear for competitive examinations

PO4 Values: Humanities education is designed in such a way that it lays particular emphasis on human values. Students on completion of the undergraduate degree will be better able to appreciate the social and cultural diversity. It equips them to think critically about the human values and ethical issues.

Program Specific Outcome (PSO)

PSO1 The Department of Psychology and Logic emphasizes the training of theoretical and applied psychological skills aimed at providing students with an objective and scientific knowledge of the basic concepts and phenomena of psychology.

PSO2 The various realms of life - cognition, emotion, behavior and spirituality are explored with ample amount of space given to both objectivity and subjectivity of human nature.

PSO3 The course is designed to enhance not only knowledge of concepts but also introduce skills required for research and profession as psychologists.

PSO4 The course is designed to enhancement of various life skills (E.g.-stress management, coping skill). Enabling to measure general and special abilities, values, personality traits. Introduction to counseling process and its techniques. Illustration of mental disorder and treatment.

PSO5 Empathetic understanding of the socio-cultural and cross-cultural aspects of community living fine-tunes students to become responsible individuals and citizens in a highly globalized environment.

Course Outcome (CO)

F.Y.B.A. Psychology (w.e.f. 2019-2020) Choice Based Credit System Pattern

Semester-I

Course - DSC-PSY- 1A: Foundations of Psychology

CO1 Students will be able to understand the basic psychological processes and their applications in day to day life.

CO2 After the completion of this course students will be able to develop the ability to evaluate cognitive processes, learning and memory of an individual

CO3 They will understand the importance of motivation and emotion of the individual.

CO4 They will understand the personality and intelligence of the individuals by developing their psychological

Semester-II

Course - DSC-PSY- 1B : Introduction to Social Psychology

CO1 After the completion of this course students will be able to understand the basics of social psychology.

CO2 They will be able to understand the nature of self, concept of attitude and prejudice of the individual.

CO3 They will be acquiring the ability to assess the interactional processes, love and aggression in our day today life.

CO4 They will be able to understand the importance of group dynamics and individual in the social world.

S.Y.B.A. Psychology (w.e.f. 2020-2021) Choice Based Credit System Pattern

Semester-III

Course - DSE-1A: PSYCHOLOGY OF ABNORMAL BEHAVIOR-I

CO1 After the completion of this course students will be able to acquire the knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders

CO2 They will examine multiple probable causes and correlates of behavior.

CO3 They will be able to understand critiques, limitations, and implications of diagnosis and classification of psychological diseases.

CO4 They will create awareness about mental health problems in society.

Semester-III

Course - DSE-2A: DEVELOPMENTAL PSYCHOLOGY

CO1 After the completion of this course students will be able to understand the importance, characteristics and concern in lifespan development

CO2 They will be able to understand biological, cognitive, and socio-emotional processes of life span development

CO3 They may understand the periods of development, the significance of age, and discuss developmental issues.

CO4 Understand Psychoanalytic, Cognitive, Behavioral and Social Cognitive, Ethological, Ecological and Eclectic theories of development

CO5 Understand methods of data collection and research designs used in Life-span development research

Semester-III

Course - SEC- 1A: HEALTH PSYCHOLOGY

CO1 After the completion of this course students will be able to understand health psychology and arrive at the introduction to the role of psychology in health.

CO2 Understand the nature of stress and coping

CO3 Understand various factors related to health and diseases.

CO4 Understand quality of life and promoting the good health

Semester-III

Course - SEC-2A: Health Promotion Life Skills

CO1 After the completion of this course students will be able to understand health psychology and Hygienic behavior

CO2 They may able to understand the Types, Signs and symptoms of infectious diseases and prevention strategies

CO3 Understand various factors related to Interpersonal relationship

CO4 Understand various factors related to competency and self-management

S.Y.B.A. Psychology (w.e.f. 2020-2021) Choice Based Credit System Pattern

Semester-IV

Course - DSE-1B: PSYCHOLOGY OF ABNORMAL BEHAVIOR-II

CO1 Learn descriptions, and theories underlying diagnostic nosology of psychiatric disorders

CO2 Learn and understand benefits, critiques, limitations, and implications of diagnosis and classification

CO3 It helps students to acquire the knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders

CO4 It helps students to examine multiple probable causes and correlates of behavior.

CO5 Create awareness about mental health problems in society

Semester-IV

Course - DSE-2B: THEORIES OF PERSONALITY

CO1 Understand the concept of personality with various theories of personality on the basis of personality psychology.

CO2 Understand different framework and theoretical aspects of personality.

CO3 Understand and observe, interpret individual differences in behavior in the light of sound theoretical systems of personality.

CO4 Understand comprehensive overview of the major theory's personality.

Semester-IV

Course - SEC- 1B: POSITIVE PSYCHOLOGY

CO1 Understand how the positive psychology as the science of happiness, human strengths, positive aspects of human behavior and 'psychology of well-being.'

CO2 Students will be able to understand that how we lead our lives, find happiness and satisfaction, and face life's challenges.

CO3 Students will be able to understand that how positive psychology has become an evolving mosaic of research and theory from many different areas of psychology.

Semester-IV

Course - SEC-2A: Health Promotion Life Skills

CO1 After the completion of this course students will be able to understand the counseling process scientifically

CO2 They may able to understand the various types of counseling skills

CO3 Understand various factors related to ethical issues and dilemmas in counseling.

T.Y.B.A. Psychology (w.e.f. 2021-2022) Choice Based Credit System Pattern

Semester-V

Course - SEC 1 C (3): INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

CO1 Students may describe the concept of industrial and organizational psychology, selection and training, evaluation and motivation at workplace.

CO2 They will explain job profile, job analysis, recruitment techniques and employee training.

CO3 They will be able to identify and classify the appraisal rating system.

CO4 They may acquire the ability to compare different theories of motivation

CO5 They will evaluate the training Programme and job performance.

Semester-V

Course - DSE 1 C (3): PSYCHOLOGICAL TESTING (THEORY) + (1) TESTING PROJECT

CO1 After the completion of this course students will be able to describe the concept of psychological test, reliability, validity and norms.

CO2 They may classify and categorize psychological tests and the types of reliability, validity and norms

CO3 They may identify the reliability and validity of psychological tests,

CO4 They may evaluate the types of norms

CO5 May achieve the skill to conduct psychological testing for project and behavior analysis

Semester-V

Course - DSE 2 C (3): PSYCHOLOGICAL TESTS + (1) STATISTICS

CO1 After the completion of this course students will be able to describe the scientific procedure of mapping of human behavior.

CO2 They may understand and explain testing about general ability, personality, adjustment and attitude.

CO3 May able to identify and classify the intellectual ability and personality patterns.

CO4 They will be conduct testing and evaluate intellectual ability, personality traits, adjustment and attitudes of participant.

CO5 They may analyze statistical methods employed in analysis

Semester-V

Course - SEC 2 C (2) (VALUE/SKILL-BASED COURSE): PERSONALITY DEVELOPMENT-1

CO1 After the completion of this course students will be able to describe the concept of personality

CO2 They may able to identify and classify various personality traits.

CO3 Correlate real life behavioral patterns with theoretical assumptions

CO4 Apply psychological skills in daily life situations

T.Y.B.A. Psychology (w.e.f. 2021-2022) Choice Based Credit System Pattern

Semester-VI

Course - SEC 1 D (3): APPLIED PSYCHOLOGY

CO1 Student should be able to describe the concept of applied psychology, educational psychology, family structure and developmental patterns.

CO2 Students may know the clinical psychology related mechanisms, social issues, and criminal behavior.

CO3 Students will be able to classify the intellectual ability, abnormality, criminal behavior.

CO4 Students may identify the problems and solutions in the field of education, health and society.

CO5 They should evaluate the interpersonal relations.

CO6 They should apply psychological remedies to assess abnormal behaviour, to tackle the social issues and to rectify the problematic behavior.

Semester-VI

Course - DSE 1 D (3): EXPERIMENTAL PSYCHOLOGY (THEORY) + (1) RESEARCH PROJECT

CO1 Student should be able to describe the process of experiments in psychology, and concept of psychophysics

CO2 Student should be able to explain the terms like problem statement, hypothesis, variables, sampling in experiment.

CO3 They should identify and classify the learning system, and methods of psychophysics.

CO4 They may compare laws of psychophysics, types of hypotheses

CO5 Acquire the ability to conduct research-based project

Semester-VI

Course - DSE 2 D (3): PSYCHOLOGICAL EXPERIMENTS + 1 STATISTICS

CO1 After completing the course, student should be able to explain psychophysics, various cognitive processes of human being

CO2 Students should be classified and compare psychological experiments.

CO3 Students should be able to conduct laboratory experiments.

CO4 They may analyze statistical base of human behavior.

Semester-VI

SEC 2 D (2) (VALUE/SKILL-BASED COURSE): PERSONALITY DEVELOPMENT-2

CO1 After the completion of this course students will be able to describe the concept of self-esteem and personality development.

CO2 They may able to identify and classify behavioural assessment techniques

CO3 They may evaluate personality of individuals.

CO4 They may apply psychological skills to develop owns personality.

8. Department of Commerce

Programme Outcome (PO)

PO – 1	To develop students be able to adapt to new industrial and commerce condition.
PO – 2	To equip the enable our young graduates to accept the upcoming century.
PO – 3	To accommodate latest happenings, researches, modules, information, technologies in each subject of the faculty of commerce.
PO – 4	To develop appropriate skills in the students so as to make them self-reliant, competent and motivate them for self-employment.

Programme Specific Outcome (PSO)

PSO-01	To develop dynamic students who can easily adapt to all local & global changes in trade & commerce.
PSO-02	To learn new upcoming technology in trade & commerce as well as accounting.
PSO-03	To develop entrepreneurial, marketing, banking& costing skills required for upcoming era.
PSO-04	To develop graduates for upcoming competitive world.
PSO-05	To train the student effectively in communication skills.

Course Outcome (CO)

Savitribai Phule Pune University, Pune
F.Y.B.Com. (Credit System) from the academic Year 2019-20
Under the Faculty of Commerce & Management
F.Y.B.COM

Semester - I

Course Name- Financial Accounting I

Course Outcome:

1. Students will be able to acquire in-depth knowledge of Accounting Concepts, Conventions and Principles and an overview of Emerging Trends in Accounting as well as Piecemeal distribution of cash.
2. Students will be able to understand the process and importance of conversion of single entry into double entry system.
3. Students will gain knowledge about GST and its implications.

Course Name- Business Mathematics & Statistics I

Course Outcome:

1. Students will be able to apply concepts of interests and annuities to calculate EMI, prepare amortization schedule, calculate insurance premiums etc.
2. Students will be able calculate dividend, brokerage on shares and mutual funds. Also, students will be able to able to identify the contribution of shares and mutual funds in systematic investment plans and to select best investment options. Students will be able to recognize and classify different types of data.
3. Students will be able to take a sample of appropriate size using suitable method of sampling. Students will be able to calculate measures of central tendency and measures of dispersion.
4. Students will be able to use appropriate measure of central tendency or measure of dispersion for given data to given problems from business or economics.

Course Name- Organizational Skills Development- I

Course Objective:

1. To introduce the students to the emerging changes in the modern office environment
2. To develop the conceptual, analytical, technical and managerial skills of student's efficient office organization and records management
3. To develop the organizational skills of students

4. To develop technical skills among the students for designing and developing effective means to manage records, consistency and efficiency of work flow in the administrative section of an Organizations.
5. To develop employability skills among the students

Course Outcome:

1. Conceptual Clarity on meaning of Modern Office, internal and external factors of an office environment.
2. Conceptual clarity on the meaning of Scientific office management and understanding various techniques for scientific management.
3. Technical skills and Critical analysis skills OF Office management & Development of Technical and Analytical abilities of Office work.

Course Name - Marketing and Salesmanship- I (Fundamentals of Marketing)
Course Objective:
1. To introduce the basic concepts in Marketing.
2. To give the insight of the basic knowledge of Market Segmentation and Marketing Mix
3. To impart knowledge on Product and Price Mix.
4. To establish link between commerce, business and marketing.
5. To understand the segmentation of markets and Marketing Mix.
6. To enable students to apply this knowledge in practicality by enhancing their skills in the field of Marketing

Course Outcome:
1. Student will get acquainted with the basics of marketing field.
2. It will highlight on the core marketing concepts namely 'Marketing Mix'. It will help students to implement this knowledge in practicality by enhancing their skills in the field of market segmentation
3. Students will develop the skills of Pricing the product along with gaining knowledge on Product Mix.
4. It will help the students to apply the various techniques of Promotion and understand the various channels of distribution.

Course Name – Business Environment & Entrepreneurship- I
Course Objective:

1) To understand the concept of Business Environment and its aspects

2) To make students aware about the Business Environment issues and problems of Growth
3) To examine personality competencies most common to majority of successful entrepreneurs and to show how these competencies can be developed or acquired 4) To understand the difference between Entrepreneurial and non-Entrepreneurial behaviour.
5) To provide knowledge of the significance of Entrepreneurship in economy
6) To familiarize the students with the contribution of selected institutes working to promote Entrepreneurship
7) To generate entrepreneurial inspiration through the study of successful Entrepreneurs

Course Outcome:

1. Understanding of various aspects business environment useful for would be entrepreneurs.
2. Understanding of various aspects of pollution and its ill effects.
3. Understanding of Problems and their causes and remedies.
4. Understanding the concept of entrepreneur, competencies of a successful entrepreneur

Semester - II
Course Name- Financial Accounting II
Course Code- 122
Course Objective:
1. To impart knowledge of various software used in accounting
2. To impart knowledge about final accounts of charitable trusts
3. To impart knowledge about valuation of intangible assets
4. To impart knowledge about accounting for leases

Course Outcome:

1. Students will be able to acquire in-depth knowledge of software used in accounting.
2. Students will be able to acquire in-depth knowledge of Final Accounts of Charitable Trust (Clubs, Hospitals, Libraries etc.)
3. Students will be able to acquire in-depth knowledge of Valuation of Intangibles.
4. Students will be able to acquire in-depth knowledge of Accounting for Leases.

Course Name- Business Mathematics & Statistics II
Course Code- 122
Course Objective:
1. To introduce the basic concepts in Finance and Business Mathematics and Statistics
2. To familiar the students with applications of Statistics and Mathematics in Business
3. To acquaint students with some basic concepts in Statistics.
4. To learn some elementary statistical methods for analysis of data.
5. The main outcome of this course is that the students are able to analyze the data by using some elementary statistical methods

Course Outcome:
1. Students will be able to acquire in-depth knowledge of software used in accounting.
2. Students will be able to acquire in-depth knowledge of Final Accounts of Charitable Trust (Clubs, Hospitals, Libraries etc.)
3. Students will be able to acquire in-depth knowledge of Valuation of Intangibles.
4. Students will be able to acquire in-depth knowledge of Accounting for Leases.

Course Name- Organizational Skills Development- II
Course Code- 125 a
Course Objective:
1. To imbibe among the students the qualities of a good manager and develop the necessary skill sets
cements and digitalization
3. To develop the communication skills of students and introducing them to the latest tools in communication
4. To develop writing, presentation, interpersonal skills of the students for effective formal corporate reporting.
5. To educate the students on the recent trends in communication technology and tools of office automation
Course Outcome:
1. Conceptual clarity goals setting & goal measurement, enhancing the time management skills.
2. Enhancing communication skills, usability latest communication media.
3. Developing technical and analytical skills.

Course Name- Marketing and Salesmanship- II (Fundamentals of Marketing)

Course Code- 126 c

Course Objective:

1. To introduce the concept of Salesmanship.
2. To give insight about various techniques required for the salesman.
3. To inculcate the importance of Rural Marketing.
4. To acquaint the students with recent trends in marketing and social media marketing

Course Outcome:

1. Students will get knowledge of the basics of salesmanship which is a vital aspect of marketing.
2. It will help the students to implement this knowledge in practicality by enhancing their skills in the field of marketing by using various techniques of salesmanship.
3. It will help the students to gain insights about Rural Marketing and its uniqueness.
4. It will help the students to gain the insights about recent trends in marketing field.

Course Name- Business Environment & Entrepreneurship - II

Course Code- 126 e

Course Objective:

1. To understand the difference between entrepreneurial and nonentrepreneurial personalities and thereby getting inspiration to make students personality entrepreneurial.
2. To make students aware about the Business Environment issues and problems of Growth
3. To examine personality competencies most common to majority of successful entrepreneurs and to show how these competencies can be developed or acquired
4. To understand the difference between Entrepreneurial and non-Entrepreneurial behaviour.

Course Outcome:

1. Understanding the difference between entrepreneurial and nonentrepreneurial personalities and thereby getting inspiration to make students personality entrepreneurial.
2. Understanding the significance of entrepreneurship in economy thereby getting inspiration to become entrepreneur.
3. Knowing the functions of related institutions.
4. Inspiration from study of Biographies to become entrepreneurs

S.Y.B.COM
Semester - III
Course Name- Business Communication I
Course Code- 231
Course Objective:

1. To understand the concept, process and importance of communication.
2. To acquire and develop good communication skills requisite for business correspondence.
3. To develop awareness regarding new trends in business communication.
4. To provide knowledge of various media of communication.
5. To develop business communication skills through the application and exercises.

Course Outcome:

1. Understanding of basic knowledge of Business Communication.
2. Understanding the importance and Essentials Qualities of business letters.
3. Understanding the knowledge about soft skills. To create awareness about soft skill among the students.
4. To create ability among the students for writing resume and Job application letter. To create ability among the students for Business Correspondence.

Course Name- CORPORATE ACCOUNTING -I
Course Code- 232
Course Objective:

1. To acquaint the student with knowledge about various Concepts, Objectives and applicability of some important accounting standards associated with to corporate accounting.
2. 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.
3. To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013
4. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision-making process.

5. To acquaint the student with knowledge about various Concepts, Objectives and applicability of some important accounting standards associated with to corporate accounting.
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.
7. To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013
8. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision-making process.

Course Outcome:

1. Developing understanding on applicability of various Accounting Standards.
2. Knowledge about types of profit and their apportionment.
3. Conceptual Clarity and Practical understanding.
4. Analytical skills enhancement and Decision-making skills of students will be developed.

Course Name- BUSINESS MANAGEMENT -I
Course Code- 234
Course Objective:

1. To provide basic knowledge and understanding about various concepts of Business Management.
2. To help the students to develop cognizance of the importance of management principles.
3. To provide an understanding about various functions of management.
4. To provide them tools and techniques to be used in the performance of the managerial job.

Course Outcome:

1. Students will get an idea about the basic managerial process.
2. Students will get an idea about how planning works in real life.
3. Students will understand the process of implementation of both the concepts.
4. Students will understand importance of proper direction and team work

Course Name- ELEMENTS OF COMPANY LAW
Course Code- 234

Course Objective:

1. To develop general awareness of Elements of Company Law among the students.
2. To understand the Companies, Act 2013 and its provisions.
3. To have a comprehensive understanding about the existing law on formation of new company in India.
4. To create awareness among the students about legal environment relating to the company law.
5. To acquaint the students on e-commerce, E governance and e-filling mechanism relating to Companies.
6. To enhance capacity of learners to seek the career opportunity in corporate sector.

Course Outcome:

1. Acquaint with knowledge and maturity to understand Company law 2013.
2. To Acquaint knowledge and application of formation and incorporation of Company.
3. To understand the knowledge about the principal documents of the company.
4. To inculcate skills and knowledge about the shar capital of the company.

Course Name-Cost and Works Accounting -I

Course Code- 236 e

Course Objective:

1. To prepare learners to know and understand the basic concepts of cost.
2. To understand the elements of cost.
3. To enable students to prepare a cost sheet.
4. To facilitate the learners to understand, develop and apply the techniques of inventory control.

Course Outcome:

1. To remember and understand basic concept of cost accounting. Development of an overall outlook of Cost Accounting.
2. Ability to prepare a cost sheet
3. Ability to understand which procedures are used for purchasing the material
4. Understand the documentation for purchase procedures
5. Understanding methods used for controlling the inventory.

Course Name- Business Entrepreneurship (Special Paper-I)

Course Code- 236 g

Course Objective:

1. To understand the concepts in Business Entrepreneurship and its aspects.
2. To make students aware about the entrepreneur and entrepreneurship.
3. To study the new age of entrepreneur and to know in details of entrepreneurship.
4. To understand the creativity and innovation required or necessary in the entrepreneurship.
5. To study the types of ethics and society responsibilities are followed in the conventional and corporate sector in the new edge followed by the rules and regulations.
6. To familiarize the students with practical survey or through project work will be able to understand the concepts in the subject thoroughly.
7. To create entrepreneurial encouragement through the study of successful entrepreneurs.

Course Outcome:

1. Understanding the difference in Entrepreneur and entrepreneurship.
2. Understanding the new age entrepreneur and will learn each.
3. Students will be able to do the SWOT analysis of their business model.
4. Student will practically study the practices followed by the organization.

Course Name- Marketing Management

Course Code- 236 h

Course Objective:

1. To introduce the concept of Marketing Management.
2. To give the students the basic knowledge of Marketing Management to be a successful modern marketer.
3. To inculcate knowledge of various aspects of marketing management through practical approach.
4. To interpret the issues in marketing and their solutions by using relevant theories of marketing management.

Course Outcome:

1. Student will get acquainted with the basics of Marketing Management subject.
2. It will help students to know the preferences, likes and dislikes of the consumer which lead to the further modernization of the sales strategies by marketer.

3. It will help them to implement this knowledge practical situations by enhancing their skills in the field of Marketing.
4. To enable the students to study the effect of external environment on decision-making of the firm.

S.Y.B.COM
Semester - IV
Course Name- Business Communication II
Course Code- 241
Course Objective:
1. To understand the concept, process and importance of communication.
2. To acquire and develop good communication skills requisite for business correspondence.
3. To develop awareness regarding new trends in business communication.
4. To provide knowledge of various media of communication.
5. To develop business communication skills through the application and exercises.

Course Outcome:
1. Understanding of basic knowledge of Report Writing and Internal Correspondence and Import-Export Correspondence
2. Learning the Recent Trends in Business Communication
3. To create ability among the students for Drafting of Business Letters
4. To create ability among the students about Writing Formal Mails and Blog writing.

Course Name- CORPORATE ACCOUNTING- II
Course Code- 242
Course Objective:
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.
2. To develop the knowledge among the student about consolidation of financial statement with the process of holding.
3. To update the students with knowledge of the process of liquidation of a company
4. To introduce the students with the recent trends in the field of accountancy

Course Outcome:
1. Developing understanding on accounting

2. Conceptual understanding, practical application skills in the process of accounting for absorption.
3. Practical understanding process of liquidation on companies.
4. Updating of knowledge on recent advances in the field of Accountancy.

Course Name- BUSINESS MANAGEMENT -II
Course Code- 244
Course Objective:

1. To provide idea about the basic motivational tools used in the field of Business Management.
2. To help the students to develop cognizance of the importance of management principles.
3. To provide an understanding about various functions of management.
4. To provide them tools and techniques to be used in the performance of the managerial job.

Course Outcome:

1. Students will get an idea about the basic motivational tools used in the field of management
2. Students will get an idea about how leadership influences organizational success.
3. Students will understand the significance of coordination and control in modern business management.
4. Students will come across various emerging trends in management.

Course Name- ELEMENTS OF COMPANY LAW
Course Code- 245
Course Objective:

1. To develop general awareness among the students about management of company
2. To have a comprehensive understanding about Key managerial Personnel of company and their role in Company administration.
3. To acquaint the students about E Governance and E Filling under the Companies Act, 2013.
4. To equip the students about the various meetings of Companies and their importance.
5. To make students capable of becoming good human resource of the corporate sector.

Course Outcome:

1. To Acquaint knowledge and maturity to understand Company management.
2. To Acquaint with knowledge and role of key managerial person of the Companies and Rules about CSR.
3. To get training in to various types of meeting and procedure.
4. To enhance skills and knowledge about the E- governance of the company and winding-up of the company

Course Name- Cost and Works Accounting -I

Course Code- 246 e

Course Objective:

1. To know the documents that is used in stores and how to calculate the issuing price of material.
2. To provide knowledge to students on classification and codification.
3. To equip students with knowledge regarding the ascertainment of Labor cost.
4. To understand the concept of payroll.
5. To know the concepts of Labor turnover and merit rating.
6. To understand recent trends in cost accounting.

Course Outcome:

1. Understanding various methods used in the pricing of the issue of materials
2. Enabling to calculate wage payment and incentives.
3. Understanding the process of job analysis, job evaluation and merit rating.
4. Insight into recent processes used for cost reduction.

Course Name- Business Entrepreneurship (Special Paper-I)

Course Code- 246 g

Course Objective:

1. To understand the concept Individual Entrepreneurship and Group Entrepreneurship along with their significance.
2. Students should know to service sector and its role in National Economy also have to detail knowledge of benefits of industries in rural and urban areas.
3. To study the real-life well-known examples of entrepreneurs and enterprises in India, to motivate the students to enhance their competencies and create interest in, to become an enterpriser or to be an entrepreneur.

4. Students should be able to understand the challenges in entrepreneurship development and how these environmental factors affect the business so the students should be known how to overcome on these factors or challenges.

Course Outcome:

1. Understanding the basics difference in Individual
2. Entrepreneur and Group Entrepreneurship and details in SHG.
3. Students will identify the opportunities of entrepreneurship in the present market, in terms of production, trading or by providing services.
4. Students will be able to study and

Course Name- Marketing Management
Course Code- 246 h
Course Objective:

1. To create awareness and impart knowledge about the basics of Marketing Management which is the basic foundation of Marketing subject.
2. To orient the students in recent trends in marketing management.
3. To understand the concept of Green Marketing.
4. To enable students to apply this knowledge in practical by enhancing their skills in the field of Marketing.

Course Outcome:

1. Students will understand how Green Marketing is necessary for marketers to use resources efficiently, so that organizational objectives are achieved without waste of resources.
2. It will help the student to apply the various techniques and methods of E-Marketing practically.
3. It will help them to implement the knowledge of Digital Marketing in practical by enhancing their skills in the field of Marketing.
4. It will help them to gain a solid understanding of the theoretical and conceptual knowledge of international marketing.

T.Y.B.COM
Semester - IV
Course Name- Business Regulatory Framework
Course Code- 351

Course Objective:

1. To provide conceptual knowledge about the framework of business Law in India.
2. To orient the students about the legal aspect of business.
3. To create awareness among the students about legal environment relating to the Contract Law, Partnership Act, Sale of Goods Act in India.
4. To understand the emerging issues relating to e-commerce, e-transaction issues and E Contracts 71
5. To seek the career opportunity in corporate sector relating to business law in India.
6. To acquaint students with the basic concepts, terms & provisions of Mercantile and Business Laws.

Course Outcome:

1. Acquaint knowledge and maturity to understand Contract Law.
2. To Acquaint knowledge and application of Partnership Deed.
3. To get training to face emerging issues relating Sale of Goods Act.
4. To give Comprehensive insight about the emerging trend of Arbitration and conciliation and its regulatory mechanism

Course Name- Advanced Accounting II

Course Code- 35

Course Objective:

1. To acquaint the student with knowledge about various concepts, objectives, and applicability of some important accounting standards.
2. To develop the knowledge among the students about reorganization of business regarding restructuring the capital.
3. To update the students with knowledge for preparation of final accounts of a Banking Companies with the provisions of Banking Regulation Act 1949.
4. To empower to students with skills to prepare the investment account in simple and summarized manner.

Course Outcome:

1. Developing understanding on applicability of various Accounting Standards.
2. Knowledge about of the Accounting for Capital Restructuring.
3. Conceptual Clarity and Practical understanding of preparation of final accounts of banking companies.
4. Developing knowledge about Investment Accounting.

Course name: Auditing

Course code: 354

Course objective:

1. To acquaint themselves about the Definition, Nature, Objectives and Advantages of Auditing, Types of Audits, Errors and Fraud, Audit Program, Notebook, Working Paper, Internal Control, Check.
2. To get knowledge about concept of Checking, Vouching, Verification and Valuation, Types of Audit Report and Auditing Assurance Standard.
3. To understand the provision related Qualification, Disqualification, Appointment, Removal, Rights, Duties and Liability of Company Auditor and Provisions regarding Tax Audit as per Income Tax Act 1961 (Section 44 AA to 44AE).
4. To know the various new concepts in computerized system and Forensic Audit.

Course outcome:

1. Acquaint with knowledge and maturity to understand concept of Auditing, types of Audits and Audit Process.
2. Conceptual Clarity and Practical understanding of Vouching Verification and valuation and Types of Audit Report.
3. Practical knowledge about appointment, reappointment and other related provision. Practical knowledge about Tax Audit as per I.T. Act 1961 (Form 3CA, 3CB & 3CD).
4. Understanding new concepts under Audit of Computerized Systems & Forensic Audit

Course name: Cost and Works Accounting. Special Paper II

Course code: 355e

Course objective:

1. To provide knowledge about the concepts and principles of overheads.
2. To Introduce the cost accounting standards and the cost accounting standard board.
3. To understand the stages involved in the accounting of overheads.
4. To build an ability towards strategic overhead accounting under Activity Based Costing

Course outcome:

1. To remember and understand the concept of overhead and classification of overheads
2. Understanding the significance of overheads in the total cost of product/service.
3. Ability to understand the stages in the process of accounting overheads.

4. Application of Accounting treatment for under and over absorption. Knowledge about detection of overheads to different activities

Course name: Business Entrepreneurship (Special Paper II)

Course code: 355g

Course objective:

1) To develop understanding of MSME and its formation

2) To Develop Knowledge and understanding in creating and managing new venture.

3) To equip students with necessary tools and techniques to set up their own business venture

4) To help students to bring out their own business plan.

5) To make students aware about business crises and sickness.

Course outcome:

1. Understanding the concept and government schemes related to MSME.
2. Gaining practical knowledge related to formation of MSME.
3. Students will be able to prepare business plan and formulate project report.
4. Understanding the role and schemes of various institutions in Project assistance.

Course name: Marketing Management-II

Course code: 355h

Course objective:

1. The objective of this course is to facilitate understanding of the conceptual framework of marketing and its applications in decision making under various environmental constraints.

2. The course will make learners understand how to make effective marketing decisions, including assessing marketing opportunities and developing marketing strategies and implementation plans.

Course outcome:

1. And Jute Industry, Sugar Industry, Service Industry, Information Technology Industry Health Sector. To apprise students regarding various aspects of Agricultural marketing. To understand the functions and Problem of Agricultural Marketing.
2. To understand the role of Agricultural Processing.
3. To make the students know about Problems & remedial measures of Agricultural Processing.

4. To understand the Role, Importance and Growth of Agricultural Industry, Textiles

Course name: Cost and Works Accounting Special Paper III

Course code: 356e

Course objective:

1. To prepare learners to understand the basic techniques in Cost Accounting
2. To understand the learner, application of Cost Accounting techniques in cost control and decision making.
3. To enable the learners to prepare various types of Budgets.
4. To learn the basic concept of Uniform Costing and Inter-firm comparison
5. To enhance the knowledge of students about MIS and Supply Chain Management.

Course outcome:

1. Development of overall outlook of Marginal Costing.
2. Develop the Knowledge about preparation of various types Budgets.
3. Understand the implementation n of Interfirm comparison
4. Understand the implementation of modern costing environment.

Course name: Business Entrepreneurship (Special Paper-III)

Course code: 356g

Course objective:

1) To acquaint students with knowledge and skills required for organizing and carrying out entrepreneurial activities.

2) To develop the ability of analyzing and understanding business situations

3) To study the interdependent, fast-changing and diverse world of entrepreneurship and innovation.

4) To familiarize students with various concepts and processes involved in entrepreneurship and business formation and development

5) To provide students with the knowledge, skills and motivation to encourage entrepreneurial approach in a variety of settings. 6) To study the application of group dynamics to counseling, personal growth and other psychologically-oriented groups.

Course outcome:

1. Capacity to: i. Analyze Individual and group behavior, and understand the implications of organizational behavior on the process of management. ii. Demonstrate the applicability of the concept of organizational behavior to understand the Behavior of people in the organization. iii) Analyze the

complexities associated with management of the group behavior in the Organization.

2. Capacity to: in. Analyze the complexities associated with management of the group behavior in the organization. ii. Develop the necessary managerial and personal skills which are essential to the current business environment.
3. Understanding the new age entrepreneur and will learn each.
4. Understanding to interpret their own business plan.

Course name: Marketing Management (Special Paper-III)
Course code: 356h
Course objective:
1. To introduce the concept of advertising and advertising media.
2. To provide the students the knowledge about appeals and approaches in advertisement.
3. To acquaint the students to the economic, social and regulatory aspects of advertising.
4. To make the student understand the role of Brand Management in marketing.
5. To enable the students to apply this knowledge in precise by enhancing their skills in the field of advertising

Course outcome:
1. Student will understand the concept of advertising and advertising media.
2. To enable the students to study the Appeals and Approaches in Advertisement.
3. It will help the students to apply the various Economic and social aspects of advertising. It will help them to implement this knowledge in practical situations by enhancing their skills in the field of Marketing.

M.COM Part-I

Semester I
Course name: Management Accounting
Course code: 101
Course objective:
1. To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.
2. To enhance the abilities of learners to analyze the financial statements.
3. To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporates.

4. To make the students develop competence with their usage in managerial decision making and control.

Course outcome:

1. To understand the concept of Financial Accounting and its limitations, emergence of Management Accounting and Cost Accounting, its advantages and distinction between Management Accounting and Cost Accounting.
2. To understand the concept of Marginal Costing, its applications, different techniques of managerial cost accounting and fixed and Variable Cost Analysis in decision making process.
3. To understand the concept of budget and budgetary control, types of budgets and preparation of functional budgets in an organization.
4. To understand the concept of Working capital Management, determination of working capital, components of working capital and accounts receivable and inventory management

Course name: Strategic Management
Course code: 102
Course objective:

1. To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.
2. To enhance the abilities of learners to analyze the financial statements.
3. To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporates.
4. To make the students develop competence with their usage in managerial decision making and control.

Course outcome:

1. Conceptual Clarity on Strategic management.
2. Development effective Strategy formulation and analytical ability and Skills to design Strategic Plan.
3. Development of Applicability skills and technical skills. Development of Technical and analytical abilities.

M.COM Part –I Semester II
Course name: Financial Analysis & Control
Course code: 202

Course objective:

a. To enable the students to acquire knowledge of financial analysis and control tools

b. To Make appropriate application and uses of financial analysis and control

Course outcome:

1. Application of IT for financial analysis
2. Generate interest among students to use and apply Excel as a tool for financial analysis.
3. Learn to analyze and identify financially strong and weak companies
4. Develop needed understanding and use of various ratios for financial analysis.

M.COM Part –I Semester -III

Course name: Research Methodology for Business

Course code: 302

Course objective:

a. To acquaint the students with the areas of Business Research Activities

b. To enhance capabilities of students to conduct the research in the field of business and social sciences

c. To enable students in developing the most appropriate methodology for their research studies

d. To make them familiar with the art of using different research methods and techniques

Course outcome:

1. Understanding of basic knowledge of business Research, Research Process, ethical issues and modern practices in research.
2. Learning the formulation of Research problem, Hypotheses, research Design and sampling.
3. Gaining knowledge of Sources of Data collection measurement & Scaling, processing of Data.

9. Department of B.B.A.

Program Outcome (PO)

PO 1 To develop precise understanding about business environment and organizations.

PO 2 To develop leadership aptitude among the students in order to work independently and in organized groups.

PO 3 To inculcate among the students the qualities of a dynamic manager, capable of taking various decisions and communicating effectively to different groups of people.

PO 4 To understand and gain knowledge of various financial institutions and agencies.

Program Specific Outcome (PSO)

PSO 01 To learn management based facts.

PSO 02 To learn applied aspects of management including skill oriented knowledge.

PSO 03 To understand basic concept regarding org. Business Administration.

PSO 04 To develop managerial skills among the students.

PSO 05 To understand what is the role of communication in personal and business world.

COURSE OUTCOMES (COs) OF BACHELOR OF BUSINESS ADMINISTRATION B.B.A.

- **Semester I**

Subject Name -: Principles of Management
Course Code -: GC 101

1. To understand basic concept regarding org. Business Administration
2. To examining how various management principles
3. To develop managerial skills among the students

Subject Name -: Business Communication Skills
Course Code -: SC 102

1. To understand what is the role of communication in personal and business world.
2. To understand system and communication and their utility
3. To develop proficiency in how to write business letters and other communications required in business

Subject Name -: Business Accounting
Course Code -: GC 103

1. To develop right understanding regarding role and importance of monetary and financial transactions in business
2. To cultivate right approach towards classifications of different transactions and their implications
3. TO develop proficiency preparation of basic financial as to how to write basis accounting statement - Trading and P&L

Subject Name -: Business Economics – Micro
Course Code -: GC 104

1. To understand role of economics as it influences society and business
2. To study how different decisions are taken in relation to price demand and supply.
3. To develop right understanding regarding Monopoly, perfect competition, revenue Etc.

Subject Name -: Business Mathematics
Course Code -: GC 105

1. To develop appropriate understanding as how to use mathematic like computation interest, profit etc.
2. To cultivate right understanding regaining numerical aptitude

3. To develop logical approach towards analytical approach data

Subject Name -: Business Demography

Course Code: SC 106

1. To give proper understanding regarding concept of demography in modern economic setup

2. To study how population and structure changes affecting quality of life and business

3. To develop clarity of concept regarding social economic process and urbanization and its impact on society

Semester I1

Subject Name -: Business Organizations and Systems

Course Code -: GC 201

1) To understand role and functions of modern business

2) To develop right understanding regarding business environment

3) To study how a business institution functions in a given economic set up

Subject Name -: Principles of Marketing

Course Code -: GC 202

1. To develop write understanding regarding marketing environment in the country

2. To develop appropriate conceptual understanding as to develop basic marketing concept

3. To develop new understanding regarding services, rural marketing and new trends in marketing

Subject Name -: Principles of Finance

2 **Course Code -: GC 203**

1. To cultivate right approach towards money, finance, and their role in business
2. To develop right understanding regarding various sources of finance and their role and utility in business
3. To develop basic skills as to concept of capital structure and concept of capital structure

Subject Name -: Basics of Cost Accounting

Course Code -: 204 GC

1 To develop rational understanding regarding concept of cost expenditure in business

2. To develop understanding how overheads influence the cost structure of cost

3. To develop skills for computation of total cost for a particular product

Subject Name -: Business Statistics
Code -: 205 GC

1. To understand role and importance of statistics in various business situations
2. To develop skills related with basic statistical technique
3. Develop right understanding regarding regression, correlation and data interpretation

Subject Name-: Fundamentals of Computers
Course Code-: 206 GC

1. To develop concept of information and their role in modern businesses
2. To develop rational approach as to how computers can be used in data process analysis in business
3. To develop understanding regarding cautions to be taken security, safety and security while using net-based service

COURSE OUTCOMES (COs) OF BACHELOR OF BUSINESS ADMINISTRATION B.B.A.

- **Semester III**

Subject Name -: Principles of Human Resource Management
Course Code -: GC 301

1.To introduce the basic concepts of Human Resource Management.
2. To cultivate right approach towards Human Resource and their role in business
3. To create awareness about the various trends in HRM among the students.

Subject Name -: Supply Chain Management
Course Code -: GC 302

1. To enable the students to have a comprehensive understanding of Supply Chain Management. 2. To understand key concepts and issues of Logistics and Inventory Management.
3. To understand Warehousing and its role in Space Management.

Subject Name -: Global Competencies and Personality Development
Course Code -: GC 303

1. To build self-confidence, enhance self-esteem, and improve overall personality of the students. 2. To enhance global and cultural competencies of the students.

3. To groom the students for appropriate behaviour in social and professional circles.
Subject Name -: Fundamentals of Rural Development

Course Code -: GC 304
1. To understand the development issues related to rural society.
2. To find the employment opportunities for rural youth.
3. To create interest among the rural youth to participate in rural development programmes and schemes for sustainable development.
4. To discourage seasonal and permanent migration to urban areas.

Subject Name -: Organizational Behaviour (OB) Course Code: DSE- C -305 HRM Discipline Specific Electives
Course Code -: DSE C 305
1. To describe the major theories, concepts, models and frameworks in the field of organizational behavior.
2. To explain determinants of Organizational Behaviour at Individual, Group and Organizational Level. 3. To give knowledge about approaches to line-up individual, groups & managerial behaviour in order to achieve organizational goals

Subject Name -: Legal Aspects in Human Resources
Course Code: DSE - C 306 (HRM)
1. To study and explain rights of employees work place.
2. To understand the Applications of different Legal Aspects in HR.

<u>Semester IV</u>
Subject Name -: Entrepreneurship and Small Business Management-
Course Code -: GC 401
1. To understand the concept and process of Entrepreneurship.
2. To Acquire Entrepreneurial spirit and resourcefulness.
3. To get acquainted with the concept of Small Business Management.
4. To understand the role and contribution of Entrepreneurs and Small Businesses in the growth and development of individual and the nation.
Subject Name -: Production and Operation Management
Course Code -: GC 402
1. To understand the key concepts of Production and Operation Management.
2. To understand the various manufacturing methods and role in managing business.

3. To create awareness about the various safety measures and ergonomics in industries.

Subject Name -: Decision Making and Risk Management
Course Code -: 403 GC

1. To learn the key topics in decision making and risk management so that they can improve decision making and reduce risk in their management activities and organizations.
2. Find the best alternative in a decision with multiple objectives and uncertainty.
3. Describe the process of making a decision.
4. Analyze an organization's decision-making system.
5. Develop a risk management process.

Subject Name -: International Business Management
Course Code -: 404 GC

1. To acquaint the students with emerging trends and issues in International Business.
2. To study the impact of International Business Environment on foreign market operations.
3. To analyze international trade models.
4. To analyze the International Investment and its risks associated.
5. To understand financial aspects in world economies, their need and functionality

Subject Name -: Human Resource Management Functions& Practices- HRM
Code -: 405 C-

1. To acquire comprehensive Knowledge of Human Resource Management Functions & Practices.
2. To explain the methods of Performance Appraisal, Training, Executive Development and Employee Compensation.
3. To acquire knowledge about various HR practices adopted by the organization.

Subject Name-: Employee Recruitment & Record Management
Course Code-: DSE 406 C- HRM

1. To study and explain employee acquisition and its importance in industry.
2. To cultivate right approach towards employee recruitment and record management.

COURSE OUTCOMES (COs) OF BACHELOR OF BUSINESS ADMINISTRATION B.B.A.

➢ Semester V

Subject Name -: **Research Methodology**
Course Code -: GC 501
1. To develop an understanding of the right approach of Research Methodology and its role in Business.
2. To develop an understanding of the basic framework of the identification of various sources of information for data collection.
3. To develop an understanding of various Designs, Tools and Techniques of Research Study.
4. To enable the students in conducting Research work and write Research Paper and Research Project Report.

Subject Name -: Database Administration and Data Mining Course Code -: GC 502
1. To understand the Database Management System
2. To understand the Data Mining Concepts
3. To understand the current trends in Data Management

Subject Name -: Business Ethics
Course Code -: GC 503
1. To provide a comprehensive understanding of the concepts of Business Ethics
2. To develop theoretical tools to understand current ethical issues and their impacts on business.
3. To analyze the role of Ethics in business, Government and Society.
4. To analyze the Ethical scenario concerning to Environment and consumer protection.

Subject Name -: Management of Corporate Social Responsibility
Course Code -: GC 504
1. To understand the concept and process of CSR
2. To understand the industrial contribution for CSR Policy
3. To understand the context of CSR of present-day Management
4. To understand the contribution of CSR for the development of Society

Subject Name -: Cross-Cultural HR & Industrial Relations
Course Code -: DSE-C 505 HRM Discipline Specific Electives

1. To make students understand Cultural Variables in Multinational Enterprises.
2. To learn some basic business etiquette and dining etiquette that will help to work in different countries across the globe
3. To make students understand the relationship between Cross-Culture Management and Human Resource Management.
4. To explain how employees can be prepared for international assignments.
5. To provide students with the fundamental knowledge of Industrial Relations.
6. To provide the knowledge to students of provisions under The Industrial Disputes Act,1947, The Factories Act, 1948 and The Maternity Benefit Act 2017

Subject Name -: Cases in Human Resource Management + Project work
Course Code: DSE - C 506 (HRM)
1. To understand the application of theory into practice.
2. Design critical thinking by making judgments related to problems in Case Studies of Human Resource.
3. Develop critical thinking for solving Case Studies of Human Resource.
4. To analyze the broad fundamental components of HRM.

Semester VI
Subject Name -: Essentials of E-Commerce
Course Code -: GC 601
1. To understand the importance, role, and activities of E-Commerce.
2. To understand various E-Money and E-Payment systems used in E-Commerce.
3. To understand the concept of E-Marketing and its tools in E-Commerce.
4. To understand the concept of Cyber Space and Cyber Security in E-Commerce.
Subject Name -: Management Information System
Course Code -: GC 602
1. To describe the basic concept of Information Technology and Management Information System.
2. To describe the role of information technology and information systems in business.
3. To contrast and compare how MIS support business processes.
4. To introduce the fundamental knowledge of Structured System Analysis and Design.
Subject Name -: Business Project Management
Course Code -: 603 GC
1. To develop a significant understanding of Project Management.

2. To develop a concept-based approach towards Management of Business Projects.
3. To develop the relationship between the significance of Businesses Projects & their Management.

Subject Name -: Management of Innovations and Sustainability
Course Code -: 604 GC

1. To understand the concepts of Innovation and Sustainability in a practical sense.
2. To better know the significance of Organizational sustainable development and the economic implications of sustainable development.
3. To learn about the most common errors made when handling sustainable growth.
4. To understand the concept of Sustainability Innovation. Understand socio-political aspects of sustainable development – social responsibility aspect.

Subject Name -: Global Human Resource Management
Code -: 605-C DSE HRM

1. To understand the concepts, theoretical framework, and issues of HRM in Global Perspective
2. Identify and Understand issues and practices about the major HRM functions within the context of the global environment.
3. To learn how to conduct strategic human resource management in an international setting.
4. To learn how companies manage their expatriates.
5. To look at HRM in a broader, comparative, and international perspective to deal with complex issues and manifold risks.
6. To study understanding of international approaches to dealing with people in organizations.

Subject Name-: Recent Trends & HR Accounting + Project
Course Code-: DSE 606 C- HRM

1. To make students understand the theoretical and practical fundamental knowledge of Recent Trends in HRM and HR Accounting.
2. To describe various Employee Engagement Strategies to enhance Employee Engagement.
3. To discuss the uses of Human Resource Information Systems in organizations.
4. To explain the different methods used to calculate the value of human Resources.
5. To define Human Resource Audit and outline its scope.
6. To study the methods of Human Resource Valuation

10. Department of B.B.A. (C.A.)

Program Outcome (PO)

PO1 To produce skill oriented human resource.

PO2 To import practical skills among students.

PO3 To make industry ready resource.

PO4 To brin the spirit of entrepreneurship.

Program Specific Outcome (PSO)

PSO-01 **Knowledge of Computing Systems:** An ability to understand the principles and working of computer systems.

PSO-02 **Project Development Skills:** An ability to understand the structure and development methodologies of software systems.

PSO-03 **Software Development Skills:** Familiarity and practical competence with a broad range of programming language and open-source platforms.

PSO-04 **Mathematical Skills:** An ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.

COURSE OUTCOME (CO)
Savitribai Phule Pune University, Pune
Bachelor of Business Administration (Computer Application)
B.B.A. (C.A.)
(Under faculty of Commerce & Management)
(To be implemented from Academic year 2019-20)

Semester I

Subject Name -: Business Communication Skills
Course Code -: 101
Course Objective:

1. To understand what is the role of communication in personal and business world.
2. To understand system and communication and their utility.
3. To develop proficiency in how to write business letters and other communications in required.

Course Outcome:

1. To understand the basic purpose of communication & Ability to understand and comprehend the meaning of different forms of communication
2. To understand how to write effective messages and different types of communication, & Ability to write meaningful and concise and effective messages
3. To understand how to make effective business Correspondence & Ability to write precise business letters and understanding about business correspondence
4. To understand how modern technology effects businesses and media based communication is working in present context.
5. Effects of new media on business is affecting on interpersonal relations and groups &

Ability to use different formats of social communication and technology based communication effectively

Subject Name -: Principles of Management **Course Code -: 102**
Course Objective:

1. To understand basic concept regarding org. Business Administration
2. To examining how various management principles
3. To develop managerial skills among the students

Course Outcome:

1. Basic aspects of management thinking & Develop ability of managerial thinking and cultivate business acumen
2. To understand different approaches to management thoughts and philosophy & Ability to understand approaches to philosophy of management thinking
3. To understand the importance of functions of management and their roles & Ability to organize various programmes and events
4. To know what are the themes in modern management and changes in the business & To learn about new systems and trends in modern management

Subject Name -: C-Programming
Course Code -: 103
Course Objective:

1. To develop Analytical / Logical Thinking and Problem-Solving capabilities
2. To develop Problem Solving abilities using computers
3. To teach basic principles of programming
4. To develop skills for writing programs using 'C'

Course Outcome:

1. Explore algorithmic approaches to problem solving.
2. Develop modular programs using control structures and arrays in 'C'.

Subject Name -: Database Management Systems
Course Code -: 104
Course Objective:

1. To understand data processing using computers
2. To teach basic organization of data using files
3. To understand creations, manipulation and querying of data in databases

Course Outcome:

1. Solve real world problems using appropriate set, function, and relational models.
2. Design E-R Model for given requirements and convert the same into database tables.
3. Use SQL

Subject Name -: Business Statistics
Course Code -: 105

Course Objective:

1. To understand role and importance of statistics in various business situations
2. To develop skills related with basic statistical technique
3. Develop right understanding regarding regression, correlation and data interpretation

Course Outcome:

1. Explains the history, definition and scope of Statistics.
2. Differentiates population and sample.
3. Recognizes central tendency and various measures of central tendency
4. Explains and evaluates various measures of central tendency.

Semester II

Subject Name -: Organizational Behavior & Human Resource Management

Course Code -: 201

Course Objective:

1. To understand basic concept of HRM & OB.
2. To make aware students about traditional & modern methods of procurement & development in organization.
3. To know the major trends in HRM & OB.

Course Outcome:

1. To develop group cohesiveness
2. Up gradation of knowledge of new trends in Recruitment and Selection.
3. Up gradation of skill.
4. To develop decision making skill.

Subject Name -: Financial Accounting Course Code -: 202

Course Objective:

1. To develop right understanding regarding role and importance of monetary and financial transactions in business
2. To cultivate right approach towards classifications of different transactions and their implications
3. To develop proficiency preparation of basic financial as to how to write basis accounting statement - Trading and P&L

Course Outcome:

1. To learn about importance of acc. in business
2. Ability to distinguish between different tractions and its nature
3. Ability to prepare and interpret bank reconciliation statement
4. Appling software basic financial statement and converting row financial data into well written financial data

Subject Name -: Business Mathematics

Course Code -: 203

Course Objective:

1. To understand role and importance of Mathematics in various business situations and while developing software's.
2. To develop skills related with basic mathematical technique

Course Outcome:

1. Relate and apply techniques for constructing mathematical proofs and make use of appropriate set operations, propositional logic to solve problems
2. Use function or relation models to interpret associated relationships
3. Apply basic counting techniques and use principles of probability
4. Given a data, compute various statistical measures of central tendency
5. Use appropriate Sampling techniques

Subject Name -: Relational Data Base

Course Code -: 204

Course Objective:

1. Enables students to understand relational database concepts and transaction management concepts in database system.
2. Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.

Course Outcome:

Understanding of various RDBMS products

1. Use of relational database
2. To get knowledge of Front End and Backend
3. Understanding of various programming aspects
4. Learning of different exceptions

5. Writing of triggers and packages

Subject Name -: Web Technology
Course Code -: 205
Course Objective:
1. To know & understand concepts of internet programming.
2. To understand how to develop web-based applications using JavaScript.

Course Outcome:
1. Understand how to develop dynamic and interactive Web Page

<u>Semester III</u>
Subject Name-: Digital Marketing
Course Code-: 301
Course Objective:
1. The aim of this syllabus is to give knowledge about using digital marketing in and as business.
2. To make SWOT analysis, SEO optimization and use of various digital marketing tools.

Course Outcome:
1) Helps the students to get to Know about Ecommerce Concept
2) Understanding what is Internet Marketing
3) Students get the knowledge of What are Digital Marketing concepts which is the basic requirements of every organization when it targets a new Group.
4) Students Get an Knowledge for Doing Project and understanding the flow of System and to attract the audience.
5) Students get the knowledge of Various Keys supports of SWOT analysis: Strengths, Weaknesses, Opportunities, and
6) Threats and how to write various quires using Relational algebra concepts.

Subject Name -: Data Structure
Course Code -: 302
Course Objective:
1. To understand the concepts of ADTs
2. To learn linear data structures – lists, stacks, and queues
3. To understand sorting, searching and hashing algorithms
4. To apply Tree and Graph structures

Course Outcome:

1. To use well-organized data structures in solving various problems.
2. To differentiate the usage of various structures in problem solution.
3. Implementing algorithms to solve problems using appropriate data structures.

Subject Name -: Software Engineering

Course code -:303

Course Objective:

1. To understand Software Engineering concepts.
2. To understand the applications of Software Engineering Subject

Course Outcome:

1. Compare and chose a process model for a software project development.
2. Identify requirements analyze and prepare models.
3. Prepare the SRS, Design document, Project plan of a given software system.

Subject Name-: PHP

Course Code-: 304

Course Objective:

1. Understand how server-side programming works on the web.
2. Using PHP built-in functions and creating custom functions
3. Understanding POST and GET in form submission.
4. How to receive and process form submission data.
5. Read and process data in a MySQL database.

Course Outcome:

1. Understand how to develop dynamic and interactive Web Page

Subject Name-: Block Chain

Course Code-: 305

Course Objective:

1. Understand how blockchain systems (mainly Bitcoin and Ethereum) work,
2. To securely interact with them,
3. Design, build, and deploy smart contracts and distributed applications,
4. Integrate ideas from blockchain technology into their own projects.

Course Outcome:

1. Understand what and why of Blockchain
2. Explore the major components of Blockchain
3. Learn about Bitcoin, Cryptocurrency, Ethereum
4. Deploy and exercise example smart contracts
5. Identify a use case for a Blockchain application
6. Create your own Blockchain network application

Semester IV

Subject Name-: Networking

Course Code-: 401

Course Objective:

1. To gain knowledge about Computer Networks concepts.
2. To know about working of networking models, addresses, transmission medias and
3. Connectivity devices.
4. To acquire information about network security and cryptography.

Course Outcome:

1. Have a good understanding of the OSI and TCP/IP Reference Models and in particular have a good knowledge of Layers.
2. Understand the working of various protocols.
3. Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies

Subject Name: Object Oriented Concepts through CPP

Course Code: 402

Course Objective:

1. Acquire an understanding of basic object-oriented concepts and the issues involved in Effective class design.
2. Enable students to write programs using C++ features like operator overloading, constructor and destructor, inheritance, polymorphism and exception handling**.**

Course Outcome:

1. Compare and contrast procedural and object-oriented programming
2. Apply principles of OOP

3. Design and develop applications using object-oriented programming language C++

Subject Name: Operating System
Course Code: - 403
Course Objective:
1. To know the services provided by Operating System
2. To know the scheduling concept
3. To understand design issues related to memory management and various related Algorithms.

Course Outcome:
1. Processes and Thread Scheduling by operating system
2. Synchronization in process and threads by operating system
3. Memory management by operating system using with the help of various schemes

Subject Name -: Advance PHP
Course Code -:404
Course Objective:
1. To know & understand concepts of internet programming.
2. Understand how server-side programming works on the web.
3. Understanding How to use PHP Framework (Joomla / Druple).

Course Outcome:
1. Build dynamic website.
2. Using MVC based framework easy to design and handling the errors in dynamic website.

<u>Semester V</u>
Subject Name -: Cyber Security Course Code -:501
Course Objective:
1. To understand the fundamentals of cyber security.
2. To understand various categories of Cybercrime, Cyber-attacks on mobile, tools and techniques used in Cybercrime and case studies.
3. To have an overview of the Cyber laws and concepts of Cyber forensics.

Course Outcome:
1. Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure.
2. Design, develop, test and evaluate secure software.

3. Develop policies and procedures to manage enterprise security risks.
4. Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training.

Subject Name -: Object Oriented Software Engineering
Course Code -:502
Course Objective:
1. To understand the fundamentals of object modeling
2. To understand and differentiate Unified Process from other approaches.
3. To design with static UML diagrams.
4. To design with the UML dynamic and implementation diagrams.
5. To improve the software design with design patterns.
6. To test the software against its requirements specification.

Course Outcome:
1. Compare and chose a process model for a software project development.
2. Identify requirements analyze and prepare models.
3. Prepare the SRS, Design document, Project plan of a given software system.

Subject Name -: Core Java
Course Code -:503
Course Objective:
1. To introduce the object-oriented programming concepts.
2. To understand object-oriented programming concepts, and apply them in solving problems.
3. To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes
4. To introduce the implementation of packages and interfaces
5. To introduce the concepts of exception handling and multithreading.
6. To introduce the design of Graphical User Interface using applets and swing controls.

Course Outcome:
1. Understand the concept of classes, object, packages and Collections.
2. To develop GUI based application.

Subject Name -: Python
Course Code -:504
Course Objective:

1. To learn and understand Python programming basics and paradigm.
2. To learn and understand python looping, control statements and string manipulations.
3. Students should be made familiar with the concepts of GUI controls and designing GUI applications.
4. To learn and know the concepts of file handling, exception handling.

Course Outcome:

1. Develop logic for problem solving
2. Determine the methods to create and develop Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
3. To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc.
4. To write python programs and develop a small application project

<u>Semester VI</u>

Subject Name -: Recent Trends in IT

Course Code -:601

Course Objective:

1. To introduce upcoming trends in Information technology.
2. To study Eco friendly software development concepts.
3. To provide a strong foundation of fundamental concepts in Artificial Intelligence.
4. To evaluate the performance of various data mining task.
5. To understand Data analytics using Spark Programming.

Course Outcome:

1. To study Eco friendly software development.
2. Main objective is to understand the principles and foundations of distributed databases.
3. To learn architecture of Data Warehouse
4. To learn concept of cloud computing.

Subject Name -: Software Testing

Course Code -:602

Course Objective:

1. To provide learner with knowledge in Software Testing techniques.
2. To understand how testing methods can be used as an effective tool in providing quality assurance for software.
3. To provide skills to design test case plan for testing software.

Course Outcome:

1. To understand various software testing methods and strategies.

2. To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software.
3. To design test cases and test plans, review reports of testing for qualitative software.
4. To understand latest testing methods used in the software industries

Subject Name -: Advanced Java
Course Code -:603
Course Objective:
1. To know the concept of Java Programming.
2. To understand how to use programming in day-to-day applications.

Course Outcome:
1. To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application.
2. Understand and create dynamic web pages, using Servlets and JSP.
3. Work with basics of framework to develop secure web applications.

Subject Name -: Android Programming
Course Code -:604
Course Objective:
1. To understand the Android Operating System and develop applications using Google's Android open-source platform.
2. To understand the issues relating to Wireless applications.

Course Outcome:
1. Install and configure Android application development tools.
2. Design and develop user Interfaces for the Android platform.
3. Save state information across important operating system events.
4. Apply Java programming concepts to Android application development.

11. Department of Physics

Programme Outcomes (PO's)

At the end of the Programme, students will be able to:

1. Acquire a solid foundation in all aspects of Physics.
2. Familiarize a broad spectrum of modern trends in Physics.
3. Develop experimental, mathematical & computational skills.
4. Expand the existing knowledge in basic areas of Physics acquired from the Plus-Two classes and create a logical framework in assimilating the higher levels of Physics.
5. Transform themselves as graduates of the calibre sought by technologies, industries and public service as well as academic teachers and researchers of the future.
6. Get opportunities and platform to acquaint the skills for gathering information from various resources and to understand its effective uses.
7. Develop skills and enthusiasms to the best of their potential through an intellectually stimulating environment provided by the Programme.

Programme Specific Outcome (PSO's)

By the end of the First Year Degree Programme, the students should have:

1. Attained a common level in Basic Mechanics and Properties of Matter and laid a secure foundation in Physics Principles and Applications, Heat and Thermodynamics and Electricity and Magnetism for their future courses.
2. Developed their experimental and data analysis skills through a wide range of experiments in the practical laboratories.

By the end of the Second Year Degree Programme, the students should have:

1. Been introduced to powerful tools for tackling a wide range of topics in Electronics, Oscillations, Waves, and Sound and Optics.
2. Become familiar with additional relevant mathematical techniques in Physics.
3. Further develop their experimental skills through a series of experiments which are included in the syllabus.

By the end of the Third Year Degree Programme, the students should have:

1. Covered a range of topics in almost all areas of Physics including Quantum Physics, Solid State Physics, Computational Physics, Electronics, Nuclear Physics, Electrodynamics etc.
2. Had experience of independent work such as Projects, Seminars etc.
3. Developed their understanding of Core Physics

Course Outcomes (CO's)

Savitribai Phule Pune University, Pune
F.Y.B.Sc. Physics Syllabus
(CBCS Semester Pattern)
From Academic Year 2019-2020

PHY-111 Mechanics and Properties of Matter
Learning Outcomes:
On successful completion of this course students will be able to do the following:

Students who have completed this course should

1. Be familiar with basic concepts of kinematics.
2. Have deep understanding of Newton's laws of motion and their applications.
3. Understand the concepts of work and energy thoroughly.
4. Understand the phenomena of surface tension and its applications.
5. Be familiar with the fluid mechanics.
6. Be able to solve numerical problems involving topics covered.

PHY-112 Physics Principles and Applications
Learning Outcomes:
On successful completion of this course students will be able to do the following:

1. To understand the general structure of atom, spectrum of hydrogen atom.
2. To understand the atomic excitation and LASER principles.
3. To understand the bonding mechanism and its different types.
4. To demonstrate an understanding of electromagnetic waves and its spectrum.
5. Understand the types and sources of electromagnetic waves and applications.
6. To demonstrate quantitative problem-solving skills in all the topics covered.

PHY-113 Physics Laboratory 1A
After completing this practical course students will be able to

1. Handling of the various basic measuring instruments.
2. Experimentally analyzed the theory taught during lectures,
3. Hands on Experiments help students to learn various concepts of Physics.
4. Experimental tools help to develop ability to address real world problems.

PHY-121 Heat and Thermodynamics

1. Be able to understand the equation of state and study deeply various experiments regarding it.
2. Be able to understand the laws of thermodynamics and thermodynamic processes.
3. Study the concept of entropy thoroughly.
4. Study heat engines and their efficiency.
5. Study the various temperature scales, types of thermometers and their working principles.
6. Be able to solve numerical problems involving topics covered.

PHY-122 Electricity and Magnetism

Learning Outcomes:

On successful completion of this course students will be able to do the following:

1. To understand the concept of the electric force, electric field and electric potential for
2. stationary charges.
3. Able to calculate electrostatic field and potential of charge distributions using Coulomb's
4. law and Gauss's law.
5. To understand the dielectric phenomenon and effect of electric field on dielectric.
6. To Study magnetic field for steady currents using Biot-Savart and Ampere's Circuital
7. laws.
8. To study magnetic materials and its properties.
9. Demonstrate quantitative problem-solving skills in all the topics covered.

PHY-123 Physics Laboratory 1B

After completing this practical course students will be able to

1. Hands on Experiments help students to learn various concepts of Physics.
2. Experimental tools help to develop ability to learn physics through experiments.
3. To motivate students for participation in scientific events, study visits, etc.
4. Understand scientific and technological aspects of experimental Physics.

Second Year Bachelors of Science

(S. Y. B. Sc.)

From Academic Year

2020-21

PHY-231: Mathematical Methods in Physics-I

Learning Outcomes: After the completion of this course students will be able to:

1. Understand the complex algebra useful in physics courses.

2. Understand the concept of partial differentiation.
3. Understand the role of partial differential equations in physics.
4. Understand vector algebra useful in mathematics and physics.
5. Understand the concept of singular points of differential equations

PHY-232: Electronics

Learning outcomes:

On successful completion of this course the students will be able to

1. Apply different theorems and laws to electrical circuits.
2. Understand the relations in electricity.
3. Understand the parameters, characteristics and working of transistors.
4. Understand the functions of operational amplifiers.
5. Design circuits using transistors and applications of operational amplifiers.
6. Understand the Boolean algebra and logic circuits.

PHY-233: Practical Course (Laboratory 2A)

Learning Outcome: (Credits-02)

After completing this practical course students will be able to

1. Use various instruments and equipment.
2. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
3. Investigate the theoretical background of an experiment.
4. Setup experimental equipment to implement an experimental approach.
5. Analyze the data, plot appropriate graphs and reach conclusions from data analysis.
6. Work in a group to plan, implement and report on a project/experiment.
7. Keep a well-maintained and instructive laboratory logbook.

PHY-241: Oscillations, Waves, and Sound

Learning Outcomes:

On completion of this course, the learner will be able:

1. To study underlying principles of oscillations and its scope in development.
2. To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves.
3. To explain oscillations in terms of energy exchange with various practical applications.
4. To solve numerical problems related to undamped, damped, forced oscillations and superposition of oscillations.

5. To study characteristics of sound, decibel scales and applications.

PHY-242: Optics

Learning Outcomes:

On successful completion of this course the students will be able to

1. Acquire the basic concept of wave optics.
2. Describe how light can constructively and destructively interfere.
3. Explain why a light beam spread out after passing through an aperture.
4. Summarize the polarization characteristics of electromagnetic wave
   Understand the operation of many modern optical devices that utilize wave optics.
5. Understand optical phenomenon such polarization, diffraction and
6. interference in terms of the wave model
   Analyze simple example of interference and diffraction.

PHY-243: Practical Course (Laboratory 2B)

Learning Outcome: (Credits-02)

After completing this practical course students will be able to

3. Use various instruments and equipment.
4. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
5. Investigate the theoretical background of an experiment.
6. Setup experimental equipment to implement an experimental approach.
7. Analyze the data, plot appropriate graphs and reach conclusions from data analysis.
8. Work in a group to plan, implement and report on a project/experiment.
9. Keep a well-maintained and instructive laboratory logbook.

Third Year Bachelors of Science

(T. Y. B. Sc. Physics)

PHY-351: Mathematical Methods in Physics-

Student who has completed this course should

1. Be familiar with partial differential equations.
2. Und erstand special functions used in mathematics thoroughly,
3. Be familiar with curvilinear with curvilinear co-ordinate systems.
4. Understand the concepts of special theory of relativity.
5. Be able to solve numerical problems involving topics covered.

PHY-352: Electrodynamics

After completing this practical course students will be able to

1. Be familiar with basic concepts of electrostatics.
2. Be familiar with basic concepts of magnetostatics.
3. Be familiar with basic concepts of electrodynamics.
4. Understand the laws of electrodynamics deeply.
5. Be able to solve numerical problems involving topics covered.

PHY-353: Classical Mechanics

After completing this practical course students will be able to

1. Understand mechanics of system of particles. Understand motion in central force field.
2. Understand scattering of particles deeply.
3. Be able to construct Lagrangian and Hamiltonian of physical systems.
4. Be familiar with moving co-ordinate systems.
5. Be able to solve numerical problems involving topics covered.

PHY-354: Atomic and Molecular Physics

After completing this practical course students will be able to

1. Be familiar with conceptual development of atomic model.
2. Understand one or two valence electron systems deeply.
3. Understand Zeeman effect.
4. Understand X ray / Molecular / Raman Spectroscopy.
5. Be able to solve numerical problems involving topics covered.

PHY-355: Computational Physics

After completing this practical course students will be able to

1. Be familiar with basics of ‘C’ programming.
2. Understand the structure of ‘C’ program.
3. Be familiar with various operators / functions / control statements used in ‘C’ program.
4. Be familiar with various numerical / statistical methods to solve problems.
2. Be able to construct algorithm / flow chart / program in a scientific manner.

PHY-356 Elective-I (D): Renewable Energy Sources-I

After completing this practical course students will be able to

1. Have introduction with various types of renewable energy sources.

2. Be familiar with various applications of solar energy.
3. Be familiar with various applications of biomass energy.
4. Be familiar with the wind mechanics.
5. Be aware of energy conservation and energy audit.
6. Be able to solve numerical problems involving topics covered.

PHY-3510 SEC (K): Smart Sensors and Transducer Technology

Course Outcomes: At the end of the course, a student will be able to:

1. Use concepts in common methods for converting a physical parameter into an electrical quantity.
2. Classify and explain with examples of transducers, including those for measurement of temperature, strain, motion, position and light
3. Choose proper sensor comparing different standards and guidelines to make sensitive measurements of physical parameters like pressure, flow, acceleration, etc
4. Predict correctly the expected performance of various sensors
5. Locate different type of sensors used in real life applications and paraphrase their importance
6. Set up testing strategies to evaluate performance characteristics of different types of sensors and transducers and develop professional skills in acquiring and applying the knowledge outside the classroom through design of a real-life instrumentation system.

PHY-3511 SEC (L): Physics Workshop Skill

Course outcomes:-

1. This course is to get exposure with various aspects of instruments and their usage through hands-on mode.
2. After completion of this course students will able to handle and test various instruments.

PHY-357: Physics Laboratory-3A

After completing this practical course students will be able to

1. Use various instruments and equipment.
2. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.
3. Investigate the theoretical background of an experiment.
4. Setup experimental equipment to implement an experimental approach.

PHY-358: Physics Laboratory-3B

After completing this practical course students will be able to

1. Develop skills to impart practical knowledge in real time solutions.
2. Understand principle, concept, working and application of new technology and comparison of results with theoretical calculations.
3. Design new experiments/instruments with practical knowledge.
4. Gain knowledge of new concept in the solution of practical oriented problems and to understand more deep knowledge about the solution to theoretical problems.
5. Understand measurement technology, usage of new instruments and real time applications in engineering studies.

PHY-359: Physics Project-I

After completing this practical course students will be able to

1. The student will gain experience in research. They will understand the research methodology and will help them in their future.
2. Demonstrate conceptual understanding of fundamental physics principles.
3. Communicate physics reasoning in oral and in written form.

PHY-361: Solid State Physics

After completing this practical course students will be able to

1. Be familiar with basic concepts of solid-state physics.
2. Be familiar with various types of characterization techniques.
3. Understand the band theory of metals deeply.
4. Understand the magnetism thoroughly.
5. Be able to solve numerical problems involving topics covered.

PHY-362: Quantum Mechanics

After completing this practical course students will be able to

1. Be familiar with the historical background of Quantum Mechanics.
2. Understand the wave function and its physical interpretation clearly.
3. Be familiar with the time dependent and time independent Schrodinger's equations and their applications.
4. Be familiar with various operators used in Quantum Mechanics.
5. Be able to solve numerical problems involving topics covered.

PHY-363: Thermodynamics and Statistical Physics

Student who has completed this course should

1. Understand the laws of thermodynamics.
2. Have deep understanding of kinetic theory of gases.

3. Be familiar with Maxwell's equations and their applications.
4. Be familiar with basic concepts of statistics.
5. Be able to apply the concept of statistical ensemble to various physical systems.
6. Be able to understand the concepts of Quantum Statistics.
7. Be able to solve numerical problems involving topics covered.

PHY-364: Nuclear Physics

Student who has completed this course should

1. Be familiar with basic properties of nucleus.
2. Have deep understanding of radioactivity and its applications.
3. Be familiar with nuclear forces and elementary particles.
4. Have introduction to various nuclear models.
5. Understand construction and working of various particles accelerators and detectors.
6. Understand various types of nuclear reactions and their applications.
7. Be able to solve numerical problems involving topics covered.

PHY-365 (A): Electronics-II

After completing this practical course students will be able to

1. Understand working of various components of circuit.
2. Be familiar with various applications of Op-Amp.
3. Have introduction with combinational circuits.
4. Have introduction with sequential logic circuits.
5. Be able to draw circuit diagram and explain its working.
6. Be able to solve numerical problems involving topics covered.

Skill Enhancement Courses

PHY-3610(Z): Calibration Techniques

After completing this practical course students will be able to

1. Illustrate the methods of range extension in A.C. & D.C. meters.
2. Compare calibrated meter readings with standard meters (digital meters).
3. Interpret the various methods to measure unknown resistance, inductance & capacitance.
4. Determine the physical & electrical quantities using transducers & sensors.

PHY-3611(AD): Photography

After completing this practical course students will be able to

1. Students will be able to use a variety of brainstorming techniques to generate novel ideas of value to solve problems.

2. Students will have sufficient mastery of one or more media to complete the technical and formal challenges pertinent to a body of original work.
3. Students will be able to clearly communicate the content and context of their work visually, orally and in writing.
4. Students will develop behaviors such as curiosity, initiative, and persistence that will help them engage with the world in productive ways. Students will be able to work independently or collaboratively to achieve stated goals.

12. Department of Chemistry
BSc Chemistry

Programme Outcomes (PO's)

1. Understand the central role of chemistry in our society and use as a basis for ethical behavior.
2. Provide foundation in the fundamentals & application of current chemical & scientific theories.
3. Impart skills in planning and conducting advanced chemical experiments & applying structural-chemical characterization.
4. Prepare laboratory reports that provide a description of the experiment & reasoning clearly.
5. Identify, formulate, analyze & solve problems in the analysis of chemical compounds.

Programme Specific Outcome (PSO's)

1. Student will have knowledge about fundamentals chemical and scientific theories and their applications.
2. Students familiar with the different branches of chemistry like Organic, Inorganic, Physical, Industrial, Medicinal, Analytical, Forensic, Environmental, Biochemistry.
3. Student able to prepare sample for solution preparation, prepare solution of various concentration for synthesis and analysis purpose
4. Students able to find procedure form literature to synthesize separate & purify compounds in laboratory and characterize using proper instrumentation techniques.
5. Understand the causes of environmental pollution and aware about steps to control Environmental Pollution.
6. Develops analytical and problem-solving skills among student.
7. Student able to use appropriate techniques for the qualitative and quantitative techniques for Chemical Analysis.
8. Use of Chemistry software's useful in future career such as Research, Industries & Academia.

Course Outcomes (CO's)

First Year Bachelors of Science
Chemistry

Semester I CH- 101
Physical Chemistry
At the end of course student,

1. Apply thermodynamic principles to physical and chemical process. Calculate enthalpy, Bond energy, Bond dissociation energy, resonance energy, variation of enthalpy with temperature –Kirchoff's equation
2. Explain third law of thermodynamic, Van't Haff equation and its application
3. Relation between Free energy and equilibrium and factors affecting on equilibrium constant, gas equilibrium, equilibrium constant and molecular interpretation of equilibrium constant
4. Know concepts such as Common ion effect hydrolysis constant, ionic product, solubility Product, and ionization process occurred in acids, bases, degree of hydrolysis and pH for different salts, buffer solutions.

Semester I CH- 102
Organic Chemistry
At the end of course student,

1. Aware and able to apply fundamentals of organic chemistry
2. Aware and able to apply fundamentals of stereochemistry such as Conformations, Configurations and nomenclatures of simple organic compounds
3. Learnt functional group approach for aliphatic hydrocarbons.

Semester I CH- 103
Chemistry Practical Course I
At the end of course student,

1. Aware of importance of chemical safety and strictly follow Lab safety practices while performing experiments in laboratory
2. Determine thermochemical parameters and related concepts
3. Calibration and use pH meter for analysis of commercial products and in experimental study
4. Know concept- buffer and able to prepare buffer solutions
5. Do elemental analysis of organic compounds by non-instrumental method
6. Use Paper Chromatographic Techniques for separation of constituents of mixtures

Semester II CH- 201
Inorganic Chemistry
At the end of course student,

1. Understand quantum mechanical approach to atomic structure
2. Know periodicity of elements
3. Understand theories for chemical bonding.

4. Discuss assumption and need of VSEPR theory.

Semester II CH- 202
Analytical Chemistry
At the end of course student,
1. Know about basics of analytical chemistry.
2. Know some analytical techniques of analysis.
3. Define term mole, millimole, molar concentration, molar equilibrium concentration and Percent Concentration
4. Understand theoretical background for Paper and Thin Layer Chromatography.

Semester II CH- 203
Chemistry Practical –I
At the end of course student,
1. Aware with Inorganic Estimations using volumetric analysis
2. Able to synthesize some Inorganic compounds by following given procedure
3. Analyze commercial products available in the market
4. Able to purify organic compounds

Second Year Bachelors of Science Chemistry

Course Outcome

Semester III CH-301
Physical and Analytical Chemistry
At the end of course student,
1. Explain concept of kinetics, Rate of reaction, rate laws, and order.
2. Derive integrated rate laws, expression for half-life and examples of zero order, first order, and second order reactions, Graphical method, Energy of activation, Arrhenius equation
3. Define adsorption, classification of given processes into physical and chemical adsorption, Classification of adsorption isotherms, Langmuir adsorption isotherm, Freudlich's adsorption, BET Theory.
4. Discuss the types of volumetric analysis methods –Neutralisation titrations, complexometric titrations, Redox titrations, Precipitation titration
5. Apply volumetric methods of analysis to real problem in analytical chemistry.
6. Define and explain the meaning of accuracy and precision, solved problems based on standard deviation

Semester III CH-302
Inorganic and Organic Chemistry
At the end of course student,
1. Explain molecular orbital theory, Werner's theory of coordination compounds
2. Define different terms related to molecular orbital theory and coordination chemistry

3. Explain synthesis of aromatic hydrocarbons, mechanism of reactions involved.
4. Explain important reactions of aromatic hydrocarbon.
5. Write / discuss the mechanism of Nucleophilic Substitution (SN1, SN2 and SNi) reactions.
6. Identify and draw the structures alcohols / phenols from their names or from structure name can be assigned.

Semester III CH-303
Practical Chemistry-III
At the end of course student,

1. Correlate theory to experiments.
2. Understand systematic methods of identification of substance by chemical methods.
3. Perform organic and inorganic synthesis and trace chemical reaction by suitable method i.e. (colour change, ppt. formation, TLC).
4. Set up the apparatus / prepare the solutions - properly for the designed experiments.
5. Perform the quantitative chemical analysis of substances explain principles behind it.
6. Systematic working skill in laboratory will be imparted in student.

Semester IV CH-401
Physical and Analytical Chemistry
At the end of course student,

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.
2. Explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution.
3. Explain solubility of partially miscible liquids- systems with upper **c**ritical. Solution temperature, lower critical solution temperature and having both UCST and LCST.
4. Define different terms in conductometry such as electrolytic conductance, resistance, conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, Kohlrausch's law, etc.
5. Apply conductometric methods of analysis to real problem in analytical laboratory.
6. Explain terms in Colorimetry such as radiant power, transmittance, absorbance, molar, Lamberts Law, Beer's Law, molar absorptivity
7. Apply colorimetric methods of analysis to real problem, analysis in analytical laboratory.

Semester IV CH-402
Inorganic and Organic Chemistry
At the end of course student,

1. Explain different types of isomerism in coordination complexes.
2. Apply principles of VBT to explain bonding in coordination compound of different geometries, limitation of VBT.
3. Explain principle of CFT.
4. Explain spectrochemical series, tetragonal distortion / Jahn-Teller effect in Cu (II) Oh complexes.

5. Explain structure, synthesis, mechanism reactions aldehydes and ketones, carboxylic acids and their derivatives, amines and cyclohexane.
6. Give synthesis diazonium salt from amines and reactions of diazonium salt.

Semester IV CH-403
Practical Chemistry-IV
At the end of course student,

1. Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory.
2. Understand systematic methods of identification of substance by chemical methods.
3. Write balanced equation for all the chemical reactions performed in the laboratory.
4. Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction.
5. Set up the apparatus properly for the designed experiments.
6. Perform the quantitative chemical analysis of substances and able to explain principles behind it.

Third Year Bachelors of Science
(T. Y. B. Sc. Chemistry)

Course Outcome

Semester V DSEC-I: CH-501
Physical Chemistry- I
At the end of course student,

1. Know historical of development of quantum mechanics in chemistry and understand terms involved in quantum chemistry.
2. Understand the term additive and constitutive properties.
3. Explain Raman spectra: Concept of polarizability, Pure rotational Raman spectra of diatomic molecules, Energy Expression, Selection rule, Rotational energy level diagram, Rotational Raman spectrum and Problems
4. Discuss difference between thermal and photochemical processes.
5. Know photochemical reactions: photosynthesis, photolysis, photocatalysis, photosensitization, Various photochemical phenomena like fluorescence and phosphorescence, Chemiluminescence,
6. Solve numerical Problems

Semester V DSEC-I: CH-502
Analytical Chemistry- I
At the end of course student,

1. Explain different principles involved in the gravimetry, spectrophotometry, parameters in instrumental analysis, qualitative analysis.

2. Perform quantitative calculations depending upon equations student has studied in the theory. Furthermore, student should able to solve problems on the basis of theory.
3. Design analytical procedure for given sample, discuss procedure for different types analyses included in the syllabus.
4. Select particular method of analysis if analyte sample is given to him.
5. Differentiate / distinguish / Compare among the different analytical terms, process and analytical methods.
6. Apply whatever theoretical principles he has studied in theory during practical session in laboratory.

Semester V DSEC-I: CH-503
Physical Chemistry Practical – I
At the end of course student,

1. Determine specific refractivity's of the given liquids
2. Calibrate and use pH meter for analysis.
3. Prepare of buffer solutions and measure its pH.
4. Determine the indicator constant of methyl red indicator by colorimetry
5. Determine the titration of a mixture of weak acid and strong acid with strong alkali.
6. Do qualitative analysis of vitamin by Photoflurometry.

Semester V DSEC-II: CH-504
Inorganic Chemistry – I
At the end of course student,

1. Explain electro-neutrality principle and Nephelauxetic effect towards covalent bonding, explain Charge Transfer Spectra
2. Explain MOT of Octahedral complexes with sigma bonding and compare the different approaches to bonding in Coordination compounds.
3. Understand Tran's effect and applications of Trans effect, Stereochemistry of mechanism
4. Gain the knowledge of inorganic reaction mechanisms available in the literature to solve chemical problems.
5. Explain metal, non-metal, insulator & semiconductor with intrinsic and extrinsic properties.

Semester V DSEC-II: CH-505
Industrial Chemistry – I
At the end of course student,

1. Know various industries, aspects and importance of chemical industry.
2. Explain manufacture of sugar, fruit juice, dye, soap and pigment
3. Aware of Fermentation Industry and manufacturing of ethyl alcohol by using molasses and fruit juice.
4. Understand chemistry of soap and different types of soap products,
5. Explain : Dyes its classification, synthesis, Structures, properties and applications of dyes

Semester V DSEC-II: CH-506
Inorganic Chemistry Practical – I
At the end of course student,

1. Verify theoretical principles experimentally
2. Conceptual understanding of electrogravimetric principle, Numerical Problems
3. Principles of common ion effect and solubility product, Formation of complex ion
4. Factors affecting on solubility of precipitation
5. Prepare of inorganic complexes and spot tests for metal ions and ligands:
6. Qualitative and confirmatory tests of inorganic toxicants

Semester V DSEC-II: CH-507
Organic Chemistry – I
At the end of course student,

1. Define and classify, draw structure, synthesis polynuclear and hetreonuclear aromatic hydrocarbons & Understood their reactivity, meaning of active methylene group & its Reactivity
1. To predict product with planning or supply the reagent/s for these reactions
2. Learnt different types of rearrangement and intermediate formed
3. Able to write the mechanism of rearrangement reactions and their applications
4. Understand stereochemistry by using models and learn reactivity of geometrical isomers
5. Orientation and reactivity in E1 and E2 elimination and factors affecting them
6. Use of Hoffmann and Saytzeff's Orientation as per stereochemistry

Semester V DSEC-II: CH-508
Chemistry of Biomolecules
At the end of course student,

1. Understood the Cell types its Biological composition
2. Award with different biomolecules and their stereochemistry
3. Award with types of carbohydrates with examples their chemical and structural properties, their biochemical significance
4. Know to the types of lipids with examples, structure of lipids, properties of lipids
5. Learnt structure and types, properties & structure of amino acids & protein
6. Known to enzymes with subclasses and examples and their industrial applications
7. Learnt Basic concepts of Endocrinology,
8. Student understood the different types of Endocrine glands with their hormones, biological nature and mechanism of action

Semester V DSEC-III: CH-509
Organic Chemistry Practical I
At the end of course student,

1. Separate, purify and analyse binary water-soluble and water insoluble mixture.
2. Understand the techniques involving drying and recrystallization by various method.
3. Learn the confirmatory test for various functional groups, special elements.

4. Systematic working skill in laboratory will be imparted in student.
5. Learn the basic principles of green and sustainable chemistry.
6. Learn the preparations of derivative various functional groups aspects of electrical experiments.
7. Use of Chromatogragraphic techniques in chemical analysis.

Semester V SEC-I: CH-510 A
Medicinal Chemistry: Skills Enhancing Course-I
At the end of course student,

1. Award with fundamentals of medicinal chemistry and its importance
2. Understood concept of Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics, metabolites, antimetabolites and therapeutic index
3. Understood overall process of drug discovery & drug mechanism of action
4. Importance of stereochemistry of drugs and receptors for biological effect.
5. Know mechanism of action of drugs belonging to the classes of infectious and non-infectious diseases.

Semester V SEC-II: CH-511 (A)
Environmental Chemistry: Skills Enhancing Course-II
At the end of course student,

1. Understand importance and conservation of environment, biogeochemical cycles, Hydrological Cycle.
2. Know water resources and water quality parameters
3. Aware of organic and inorganic pollutants, surfactants, toxic chemicals causing water pollution
4. Understand water parameters monitoring techniques and methodology

Semester VI DSEC-IV: CH-601
Physical Chemistry-II
At the end of course student,

1. Understand concepts in electrochemistry, electrochemical series, electrodes, Primary Batteries, Secondary Batteries, etc.
2. Explain diagram, Construction, representation, working and limitation of primary reference electrode, calomel electrode, glass electrode, silver-silver chloride electrode.
3. Know types of Reversible electrodes with respect to examples, diagram, representation, construction, working (electrode reactions) and electrode potential.
4. Explain the term crystallography and laws of crystallography.
5. Understand Radioactivity, types of radioactive decay types and properties of radiations, detectors and application of radioisotopes
6. Solve the problems

Semester VI DSEC-IV: CH-602
Physical Chemistry-III

At the end of course student,

1. Understand meaning of the terms-Solution, electrolytes, nonelectrolytes and colligative properties,
2. Know application of colligative properties to determine molecular weight of nonelectrolyte, abnormal molecular weight,
3. Factors affecting on solid state reactions,
4. Explain phenomena of photoconductivity, conductors and insulators, semiconductors
5. Numerical based on cohesive energy

Semester VI DSEC-IV: CH-603
Physical Chemistry Practical –II

At the end of course student,

1. Understand method of analysis by potentiometric titration, pH-metric titration, turbidometry
2. Explain colligative properties of material like polymer.
3. Determine the molecular weight of solute by depression in freezing point method
4. Prepare buffer solutions and measure its pH by pH-metry.
5. Analyze of crystal structure from X-ray diffraction spectra.

Semester VI DSEC-IV: CH-604
Inorganic Chemistry –II

At the end of course student,

1. Understand organometallic chemistry, method of synthesis of compounds
2. Know the phenomenon of catalysis, its basic principles and terminologies.
3. Understand the role of metals in non-enzymatic processes.
4. Explain the functions of hemoglobin and myoglobin in O2 transport and storage.
5. Know thy types of Inorganic polymers, comparison with organic polymers, synthesis, structural aspects of Inorganic polymers

Semester VI DSEC-V: CH-605
Inorganic Chemistry –III

At the end of course student,

1. Learn the concept of acid, base and their theories.
2. Know the crystal structures of solids, simple cubic, BCC and FCC structures
3. Know the defects in Ionic solids, differentiate between the defects.
4. Synthase Zeolite and their structure, Know application of zeolites
5. Learn various methods of nanoparticle synthesis
6. Know toxic chemical in the environment, explain biological methylation.

Semester VI DSEC-V: CH-606
Inorganic Chemistry Practical –II

At the end of course student,

1. Volumetric Estimations of Calcium, Cu, Phosphate, Iodine from products
2. Estimation of Na, K by flame photometry by calibration curve method and regression method.

3. Purification of water using cation/anion exchange resin and analysis by qualitative analysis
4. Synthesize nanoparticles of silver, ZnO.
5. Explain UV spectra of nanomaterial.

Semester VI DSEC-VI: CH-607
Organic Chemistry –II
At the end of course student,

1. Award with principle & instrumentation in UV, Mass, IR & NMR Spectroscopy.
2. Determine the structure of simple organic compounds on the basis of spectral data such as λ max values, IR frequencies, chemical shift (δ values).
3. Determine λ max value from structure of compound.
4. Read UV, Mass, IR & NMR Spectrum interpret them to determine structure of organic compound
5. Explain stereochemistry of cyclohexane and decalin

Semester VI DSEC-VI: CH-608
Organic Chemistry –III
At the end of course student,

1. Use retrosynthesis for synthesis of target molecule from commercially available synthetic equivalents
2. Aware with the Terms - Disconnection, Synthons, Synthetic equivalence, FGI, TM.
3. Apply knowledge of Organic Reaction Mechanism in Synthetic of organic compounds
4. Know oxidizing reagents and reducing reagents for synthesis of organic compound.
5. Explain natural products like terpenoids, Alkaloids and their importance

Semester VI DSEC-VI: CH-609
Organic Chemistry Practical –II
At the end of course student,

1. Handling of chemicals & Glassware with safety
2. Able to read infrared spectrum Identify the functional group or groups present in a compound. Interpret IR and NMR spectra
3. Apply learnt Chemistry principles in practical
4. Trained with hands-on experience of modern extraction methods.
5. Able to determine and use chromatography techniques for purification, separation of organic compounds

Semester VI SEC-IV: CH-610
Introduction to Forensic Chemistry
At the end of course student,

1. The significance of forensic science to human society.
2. The fundamental principles and functions of forensic science.
3. The work nature in a forensic science laboratory.
4. Encourage academic students towards the noble career
5. The forensic identification of illicit liquors.

6. The classification and characteristics of the narcotics, drugs and psychotropic substances.
7. The menace of designer drugs.

Semester VI SEC-IV: CH-611 (A)
Analytical Chemistry-II

At the end of course student,

1. Define basic terms in solvent extraction, basics of chromatography, HPLC, GC, and AAS and AES.
2. Identify important parameters in analytical processes or estimations.
3. Explain different principles involved in the analyses using solvent extraction, basics of instrumental chromatography, HPLC, GC, and atomic spectroscopic techniques.
4. Perform quantitative calculations depending upon equations students have studied in the theory.
5. Solve problems on the basis of theory.
6. Differentiate / distinguish / compare among the different analytical terms, process and analytical methods.

M.Sc. (Chemistry)

Programme Outcomes (PO's)

1. Broaden students' professional foundations through activities such as teaching, internship & fellowships.
2. Enable students to communicate scientific results in writing & in oral presentation.
3. Acquire the basic tools needed to carry out independent research.
4. Make students proficient in their specialized area of chemistry & successfully complete an advanced research project.
5. Explain why chemistry is an integral activity for addressing social, economic & environmental problems.
6. Develop skills in problem solving, critical thinking & analytical reasoning as applied to scientific problems.

Programme Specific Outcomes (PSO's)

1. Get and apply basic knowledge of the various aspects of Chemistry in real life Situations
2. Understand the experimental skills, designs and their implementation in novel synthetic methods.
3. Develop an aptitude towards academic and professional skills; understand the basic concepts of structural elucidation with hyphenated techniques in Chemistry.
4. Familiarize with fundamental biological processes and create rationale towards computer assisted drug designing.

Course Outcome

Semester I CCTP - 1
CHP-110 Physical Chemistry – I
At the end of course student,

1. Understand the concept of state function, path function, exact differential and inexact differential internal energy and enthalpy, Reversible and irreversible adiabatic expansion, entropy.
2. Knowledge about applications of Quantum Chemistry
3. Understand Collision theory of biomolecular gas phase reactions, diffusion controlled and activation controlled reaction in solution, activated complex theory of reaction rate, Eyrings equation.
4. Explain reaction dynamics of complex reactions.
5. Understand enzyme catalysis with mechanism.

Semester I CCTP - 2
CHI-130 Inorganic Chemistry – I
At the end of course student,

1. Understand the concept of symmetry, point group, product of symmetry operation, SALC and able to pass various symmetry elements through the molecule.
2. Apply the concept of point group for determining optical activity and dipole moment.
3. Understand the importance of Orthogonality Theorem, projection operator
4. Learn the advance chemistry of boranes, fullerene, zeolites, polymers etc.
5. Understand organometallic chemistry of some important elements from the main groups and their applications

Semester I CCTP - 3
CHO-150 Organic Chemistry – I
At the end of course student,

1. Understand the criteria for aromaticity in non-benzenoid molecules and other advanced polycyclic aromatics
2. Understand the chemistry of monocyclic hetrocycles, nomenclature and reactions
3. Understand the role of various reaction intermediates like carbocation, carbanion, carbenes, radicals, and nitrenes in organic reactions; concept of NGP
4. Describe mechanism of different rearrangement reactions. Appreciates the various steps involved in the molecular rearrangements.
5. Understand the chemistry of Ylides and study Ylides and their reaction
6. Use synthetic reagent of oxidation and reduction for solving the problems

Semester I CCOP - 1
CHG-190 General Chemistry - I
Section I: Elective Option-A: Introduction to Solid State of Matter
At the end of course student,

1. Explain bonding in solids – band theory
2. Know electronic conductivity, Semiconductors, photoconductivity, Non-stoichiometry, defects and types of defects in solids
3. Understand Ionic conductivity and their applications
4. Explain superconductivity and theory of superconductivity
5. Describe method of synthesis of solids

Semester I CBOP - 1
CHG-190 General Chemistry - I
Section II: Elective Option-A: Inorganic Material Analysis, Synthesis and Applications
At the end of course student,

1. Do quantitative analysis of ore and alloys.
2. Synthesize of Colloidal silver nanoparticles and determine band gap by absorption spectroscopy

3. Synthesize nanoparticles of Zn, Fe, Ti, etc.
4. Characterize nanoparticles by absorption spectra.
5. Get knowledge about solid state character of material

Semester I CCPP - 1
CHP – 107: Practical Course-II
At the end of course student,
1. Get the idea about monitoring of organic reactions using TLC technique
2. Understand about importance of quality of product by TLC and physical constant
3. Knowledge about purification and separation techniques
4. Knowledge about importance of green reagents and methods in organic synthesis.
5. Knowledge about single stage synthesis.

Semester II CCTP - 4
CHP-210: Physical Chemistry – II
Course Outcomes:
1. Knowledge about types of molecules on the basis of moment of inertia and rotational spectra of di- and polyatomic molecules
2. Explain the Quantum and Classical theory of Raman effect , pure rotational Raman Spectra , Vibrational Raman Spectra
3. Explain the principle , instrumentation , and Applications of Mossbauer Spectroscopy
4. Knowledge about Interaction of radiation with matter, Interaction of gamma radiation with matter, units for measuring radiation absorption.

Semester II CCTP - 5
CHI-230- Inorganic Chemistry – II
At the end of course student,
1. Get knowledge about find out the no of microstates and meaningful term symbols, construction of microstate table for various configurations with help of Hund's rules.
2. Understand inter-electronic repulsion & concept of weak and strong ligand field.
3. Interpretation of electronic spectra for spin allowed oh and td complexes using Orgel diagram.
4. Understand the various terms involved in magnetochemistry.
5. Understand the various Quenching of orbital angular momentum.
6. Importance of bioinorganic chemistry-role of metals in Metalloprotein, metalloenzymes and importance and transport of metal ions.

Semester II CCTP - 6
CHO-250 Organic Chemistry – II
At the end of course student,
1. Understand free radicals formation, stability and reactivity and should also be able to use the basic understanding in writing probable reaction mechanisms.
2. Draw MO diagram for various olefinic compounds and should able to predict the products, the stereochemistry as well as should able to understand the preferred reaction pathways.

3. Know various key factors responsible for the spectroscopic data acquisition and should able to solve Problems based on UV, IR, MS, 1H-NMR,13C-NMR.
4. Understand MOT and will be able to extend this in predicting reaction mechanism and stereochemistry of electrocyclic reactions.
5. Understand the basic principle of spectroscopic methods and their applications in structure elucidation of organic compounds using given spectroscopic data or spectra.

Semester II
CHG-290 General Chemistry - II
Elective Option-A: Material Characterization Technique
At the end of course student,

1. Know different characterization technique of solids.
2. Understand principle of XRD, instrumentation of powder XRD, Brags law, applications of XRD for crystal structure determination, numerical problems.
3. Explain principle of SEM, instrumentation of SEM and interpretation of surface morphology of solid from SEM.
4. Principle of TEM, instrumentation of TEM and interpretation of TEM images.
5. Basics of X-rays, Principle of XRF, types of XRF, instrumentation, qualitative and quantitative analysis, numerical.

Semester II
CHG-290 General Chemistry - II
Elective Option-B: Organometallic and Inorganic Reaction Mechanism
At the end of course student,

1. Explain valence electron count, back bonding in organometallics, spectral characterization of organometallic compounds.
2. Understand catalytic reaction involving organometallic compounds and mechanism of these reactions
3. Know types of reaction involving organometallic compounds
4. Know types of reactions in coordination compounds, inert and labile complexes, substitution reactions in coordination complexes and their mechanism, stereochemistry of reaction, kinetics of reactions.

Semester II CCOP - 2
CHG-290: General Chemistry – II
Elective Option-A: Electrochemical Methods of Analysis
At the end of course student,

1. Introduce fundamental concepts in Electrochemical Analysis.
2. Students will be able to explore new areas of research in chemistry and electrochemical fields of science and technology.
3. Students will be able to understand statistical treatment of experimental data.
4. Explain polarographic method of analysis elements.

Semester II CCPP - 2
CHP – 227: Practical Course-II
Learning Outcomes:

1. Synthesize of coordination complexes.
2. Student will able to measure the conductance of metal complexes.
3. Making derivatives of organic compounds will help them in industry or while doing research in medicinal chemistry for Drug development.
4. This practical course is also designed to make student aware of green chemistry and role of green chemistry in pollution reduction.
5. The students learn how to avoid solvents and do solvent free reaction.
6. Students are trained to different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.
7. Students are made aware of safety techniques and handling of chemicals.
8. Students are made aware of carrying out different types of reactions and their workup methods.

Department of Chemistry
M. Sc. Analytical Chemistry
Programme Specific Outcome

PSO1 Student will have knowledge about fundamentals chemical analytical techniques and their applications.

PSO2 Students will able to use appropriate techniques for the qualitative and quantitative
Chemical Analysis.

PSO3 Students will able to prepare sample for analysis, prepare solutions of various concentrations for synthesis and analysis purpose

PSO4 Student will aware and used to work in chemical laboratory safely.

PSO5 Students will able to characterize samples using proper instrumentation techniques.

PSO6 Students will able to develop analytical and problem solving skills among them.

PSO7 Students will able to develop analytical method for analysis of sample and can apply statistical treatment to the analytical data.

PSO8 Students will able to determine API (Active Pharmaceutical Ingredient) from

pharmaceutical Products

PSO9 Students will able to understand the causes of environmental pollution and aware about steps to control Environmental Pollution.

M. Sc. (II) Analytical Chemistry
Course Outcome

Semester III: CCTP - 7
CHA-390: Electrochemical and Thermogravimetric Methods of Chemical Analysis
At the end of course student,

1. Define various terms in electrochemistry and thermogravimetry. Explain instrumentation in electrochemistry and thermogravimetry, basic principles of electrochemistry and thermogravimetry.
2. Explain /Describe applications of electrochemistry and thermogravimetry in industry and in analytical laboratory.
3. Apply / select particular method of analysis for sample to be analysed.
4. Solve numerical problems on electrochemistry and thermogravimetry.
5. Interpret polarogram, cyclic voltammogram, pulse polarogram, thermogram, differential thermogram and DSC thermogram.

Semester III: CCTP - 8
CHA-391: Analytical Method Development and Extraction Techniques
At the end of course student,

1. Define / understand various terms in analytical extraction and method development and validation.
2. Apply / select particular method of analysis for sample analysis.
3. Solve numerical problems on analytical extraction and method development and validation.
4. Develop analytical method for analysis of given sample.
5. Apply statistical treatment to the analytical data. Select appropriate parameters for the development of analytical method

Semester III: CCTP - 9
CHA-392: Advanced Chromatographic Methods of Analysis
At the end of course student,

1. Define / understand various terms, instrumentation of chromatography (GC and HPLC) and mass spectroscopy.
2. Explain /Describe applications chromatography (GC and HPLC) in industry and in analytical laboratory.
3. Apply / select particular method / instrumental parameters for analysis for sample GC / HPLC.
4. Solve numerical problems on chromatography (GC and HPLC) and mass spectroscopy.
5. Integrate GC and HPLC chromatogram, Mass spectrum

Semester III: CBOP - 3
CHA-393: A) Bioanalytical Chemistry
At the end of course student,

1. Define / understand various terms and instrumentation of Electrophoresis, capillary electrophoresis, HPTLC, Body fluid analysis, ELISA, RIA.
2. Explain / describe basic principles, column and detectors in GC, HPLC, MS.
3. Explain /Describe applications chromatography in industry and in analytical laboratory.
4. Apply / select particular method / instrumental parameters for analysis for sample.
5. Solve numerical problems on chromatography and mass spectroscopy.
6. Differentiate among the chromatography methods of analysis.

Semester III: CCPP - 3
CHA-394 Practical I: Basics of Instrumental Methods of Chemical Analysis
At the end of course student,

1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory and able handle all chemicals, instruments, etc. safely in laboratory.
2. Explain instrumentations of colorimeter, spectrophotometer, photoflurometer, TGA, HPLC, GC, Flame-photometer, CV, AAS, etc.
3. Explain / describe basic principles of different instrumental methods of analysis. Able to handle particular instrument according to SOP.
4. Design / modify and validate new analytical method for chemical analysis of particular sample.
5. Give mathematical treatment to analytical data and able to interpret the results accurately.
6. Differentiate among the various analytical methods / techniques of chemical analysis.

Semester IV: CCTP - 10
CHA-490: Advanced Analytical Spectroscopic Techniques
At the end of course student,

1. Define / understand various terms in atomic absorption, atomic emission, fluorescence, ESR and electron spectroscopy.
2. Explain instrumentation and principle of atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.
3. Explain advantages of ICPAES-MS over AES spectroscopy, fluorescence spectroscopy.
4. Solve numerical problems on analysis all these spectroscopic methods.
5. Interpret ESR spectra, super hyperfine splitting and g value in ESR, and parameters affecting it.
6. Calculate theoretical parameters from ESR data and characterize compound.

Semester IV: CCTP - 11
CHA-491: Chemical Methods of Pharmaceuticals Analysis
At the end of course student,

1. Describe basic principles of methods of pharmaceutical analysis according to IP.

2. Perform and explain importance of limit tests, identification tests and micobiological limit test of raw materials and finished products.
3. Solve numerical problems on analysis pharmaceutical raw material and finished product analysis.
4. Interpret IR spectra, HPLC chromatogram and UV-Visible spectra of pharmaceutical materials.
5. To perform total analysis of pharmaceutical raw material and finished product analysis according to IP / BP / USP.
6. Standardize analytical instruments according IP /BP/ USP.

Semester IV: CBOP - 4
CHA-492: A) Laboratory Automation and Environmental Analytical Chemistry
At the end of course student,

1. Define / understand various terms laboratory automation, sensors, environmental pollution, analysis water and air.
2. Describe basic principles, instrumentation and importance of automated laboratory analysis and sensors.
3. Describe sources of water and air pollution and pollutants.
4. Describe / explain methods / techniques of sampling of water and air and their analysis.
5. Solve numerical problems on analysis water and air.

Semester IV: CBOP - 5
CHA-493: Optional Analytical Chemistry Practical
At the end of course student,

1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory and able handle all chemicals, instruments, etc. safely in laboratory.
2. Define / understand various terms involved practical methods of quantitative analysis.
3. Analyses organic and inorganic materials using appropriate chemical / instrumental methods
4. Explain / describe basic principles of chemical / instrumental methods used for analysis. Able to handle particular instrument according to SOP.
5. Perform analysis of sample with described procedure. Able to handle analytical instruments.

Semester IV: CBOP - 5
CHA-494: Practical II: Applied Analytical Chemistry
At the end of course student,

1. Perform analysis of sample with described procedure. Able to handle analytical instruments.
2. Apply / select particular method / instrumental parameters for analysis of given sample.
3. Maintain appropriate reaction conditions as described in procedures.
4. To perform i) selective analysis of particular component from sample. ii) Analysis at trace level from sample.
5. To conclude the results able to take the decision regarding quality of sample.
6. To perform calculations and interpret the results.

Department of Chemistry
M. Sc. (II) Organic Chemistry
Programme Specific Outcome

PSO1 Familiar with the different branches of chemistry like Stereochemistry, Spectroscopy, Medicinal, Asymmetric Synthesis, Carbohydrate Chemistry Heterocyclic Chemistry

PSO2 Able to designing organic syntheses in feasible and economically cheaper method

PSO3 Able to prepare sample for solution preparation, prepare solution of various Concentration for synthesis and analysis purpose

PSO4 Able to find procedure form literature to synthesize separate & purify compounds in laboratory and characterize using proper instrumentation techniques.

PSO5 Awared with use of Organometallic Reagents in Organic Synthesis

PSO6 Learnt Use of Chemistry software's useful in future career such as Research, Industries & Academia

PSO7 Develop synthetic methods to maximize rate of reaction along with reduction in byproducts

PSO8 Able to use spectroscopic methods for structure determination of Organic Compounds

PSO9 Able to retrosynthetic approach to design organic syntheses

PSO10 Learnt methods for preparation of specific groups of heterocyclic systems

Department of Chemistry
M. Sc. (II) Organic Chemistry
Course Outcome

Semester III: CCTP-7
CHO-350: Organic Reaction Mechanism and Biogenesis
At the end of course student will able to-

1. Write reaction mechanism by understanding basic terminologies like electrophile, nucleophile, solvent effects, structural effects, etc
2. Know methods of generations of free radicals, stability of free radicals, their reactions and applications.
3. Understand Hammet equation, Hammett plot, reaction constant, Taft equation and solvent effect.
4. Define terpenes, Isoprene rule, MVA pathway, classification of terpenes and biogenesis of terpenoids which involve 1,2 methyl shift, 1,3 methyl shift, Wagner meerwein rearrangement, oxidative coupling reaction, role of SAM, oxidation and reduction.
5. Define Alkaloids, classification of alkaloids, process involved in biogenesis of alkaloids like decarboxylation, Schiff base formation, Trans amination reaction.
6. Understand shikimic acid pathway.

Semester III: CCTP-8
CHO-351: Structure Determination of Organic Compounds by Spectroscopic Methods
At the end of course student,

1. Recognize spectroscopy in H^1 NMR, CMR and Mass Spectrometry
2. Learn to interpret H^1 NMR, CMR, DEPT, COSY, HETCOR & Mass spectra
3. Students trained to solve combined spectra problems
4. Understand concepts of 2D NMR Spectrometry, different types of spectra & Applications
5. Understand Principles and Applications of Mass spectroscopy

Semester III: CCTP-9
CHO-352: Stereochemistry and Asymmetric Synthesis of Organic Compounds
At the end of course student will able to -

1. Draw conformations of different polysubstituted cyclohexane compounds and calculate their potential energy by considering butane gauche effect, steric effect.
2. Understand stereochemical principles involved in reaction of six membered ring and other than six membered rings.
3. Describe methods of formation of racemization and resolution of racemic mixture.
4. Apply crams rule, crams dipolar model, Felkin-Anh model in diastereoselective reaction.
5. Define asymmetric synthesis, chiral pool and chiral auxiallary.
6. Understand transition metal catalyzed homogenous asymmetric hydrogenation, epoxidation,dihydroxylation.

7. Solve problems based on diastereoselectivity by using models.

Semester III: CCOP-3
CHO-353(B): Designing Organic Syntheses and Heterocyclic Chemistry
At the end of course student,

1. Knowledge of the retrosynthetic approach to plan organic syntheses
2. Knowledge of the key reactions in organic chemistry including substitution reactions of heterocycles, enols and enolate's.
3. To equip students with the skills to plan how to prepare Organic molecules
4. Knowledge of retrosynthetic method for the logical disconnection of complex organic molecules and synthetic organic methods
5. Understand heterocyclic Chemistry which includes various methods for ring synthesis
6. Knowledge of methods for the preparation of specific groups of heterocyclic systems

Semester III: CCPP-3
CHO-354: Practical-I Solvent Free Organic Synthesis
At the end of course student,

1. Student familiar with solvent free synthesis methods
2. Need of environmentally friendly synthesis processes
3. Think to develop compounds by of sustainable methods
4. Understand toxicity and volatile nature of many organic solvents
5. Use of clays, zeolites, silica, alumina or other matrices in organic synthesis
6. Use techniques to achieve high degree of stereoselectivity in the products,
7. Develop synthetic methods to maximize rate of reaction along with reduction in byproducts

Semester IV: CCTP-10
CHO-450: Chemistry of Natural Products
At the end of course student,

1. Students should able to learn total synthesis and retrosynthesis of various natural products
2. Predict stereochemistry of the intermediate formed in synthesis of drugs
3. Understand role of different reagents and reaction mechanism
4. Knowledge about importance of drugs , their synthesis ,regio and stereoselectivity
5. Knowledge about different techniques for isolation of natural products.

Semester IV: CCTP-11
CHO-451: Organometallic Reagents in Organic Synthesis
Course outcome

1. Knowledge about the stability and reactivity of the various types of Organometallic compounds
2. Knowledge about transition metal complexes on organic synthesis
3. Knowledge about carbon – carbon , Carbon – Oxygen , Carbon- Nitrogen Bond formation reactions
4. Knowledge about geometrical isomerism that is Syn and anti-stereochemistry
5. Knowledge about catalytic cycles for C-O, C-C, C-N bond formation reactions.

6. Well known about Reagents in Organic Chemistry.

Semester IV: CBOP-4
CHO-452(A): Concepts and Applications of Medicinal Chemistry
At the end of course student,

1. Learnt Chemistry of peptides and proteins , nucleic acids, cofactors/coenzyme
2. Learnt Chemistry of TPP, PLP, Folic Acid and other vitamins
3. Understood the Chemistry of diseases, Principle of drug design and development
4. Learnt Peptides, synthesis , sequencing and their applications in therapeutics
5. Understood use modern techniques for biomolecules and disease diagnosis.
6. Learnt Case Study: Design of Oxamniquine & Statins
7. Understood the concepts Pharmacokinetics and Pharmacodynamics of drug
8. Use of Structure and activity Relationship i.e. QSAR in drug development
9. Developments, SAR, Mode of action, limitations and adverse effect of medicines

Semester IV: CBOP-5
CHO-453: Practical-III
Section-I: Ternary Mixture Separation
Section-II: Carbohydrates Synthesis and Isolation Natural Products
At the end of course student,

1. Get the idea about monitoring of organic reactions using TLC technique
2. Student will able to learn how to separate ternary mixture.
3. Understand about importance and method of synthesis of carbohydrates.
4. Knowledge about Various methods for isolation of natural products.
5. Student will able to handle equipment required for isolation of natural products.

Semester IV: CCPP-4
CHO-454: Practical-II: Convergent and Divergent Organic Syntheses
At the end of course student,

1. Get the idea about monitoring of organic reactions using TLC technique
2. Understand about importance of quality of product by TLC and physical constant
3. Knowledge about purification and separation techniques
4. Knowledge about importance of green reagents and methods in organic synthesis.
5. Knowledge about single stage synthesis, Convergent and Divergent synthesis.

13. Department of Botany

Programme Outcome (PO)

1. Knowledge and understanding of the range of plant diversity in terms of structure, function and environmental relationships. The role of plants in the functioning of the ecosystem. A selection of more specialized, optional topics. Statistics as applied to biological data.
2. Intellectual skills – able to think logically and organize tasks into a structured form. Assimilate knowledge and ideas based on wide reading and through the internet.
3. Practical skills: Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them. Depending on their choice of optional modules. a. Interpreting plant morphology and anatomy. b. Plant identification. c. Vegetation analysis techniques. d. A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry. e. Analyze data using appropriate statistical methods and computer packages. f. Plant pathology to be added for sharing of field and lab data abstained.
4. Scientific Knowledge: Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.
5. Problem analysis: Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.
6. Design/development of solutions: Design solutions from medicinal plants for health problems, disorders and disease of human beings and estimate the phytochemical content of plants which meet the specified needs to appropriate consideration for the public health.
7. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern instruments and equipment for Biochemical estimation, Molecular

Biology, Biotechnology, Plant Tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.

8. Environment and sustainability: Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
9. Ethics: Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

Programme Specific Outcome (PSO)

PSO1 Student gets expertise in Taxonomic work of plants.

PSO2 Students gets expertise in identification of plant diseases and control measures which will be helpful for farmers.

PSO3 Students get knowledge of production and use of bio fertilizers, bio pesticides, bio insecticides, bio fungicides and its applications in sustainable agriculture.

PSO4 Students get acquainted with the different methods of plant propagation [natural, artificial] and its applications in agriculture.

PSO5 Students get aware about conservation of biodiversity which is a need of time.

PSO6 Students able to understand the sophisticated techniques based on biotechnological approaches.

PSO7 Students use biological science software based on Bioinformatics

Pedagogy: Lectures / Visual Presentation / Critical Analysis / Assignments / Test/ e-learning

First Year B.Sc.
Botany
Course Outcome (CO)
Sem I & Sem Ii

PAPER I : BO-111:
PLANT LIFE AND UTILIZATION-I

1. This paper deals with plant diversity of Algae, Fungi, Bryophytes and Lichens in the nature
2. Students deals with different plant forms in nature and its economic importance.
3. Students aware role in plant groups for nature conservation.
4. Study of plants and how they survive and interact with other living and non living things in the environment. How it is commercially importance for society.

SEM I PAPER –II BO-112:

PLANT MORPHOLOGY AND ANATOMY:

1. This paper deals with scientific morphological and anatomical study angiosperm plant groups (dicot and monocot).
2. Students will aware the plant part types for plant identification process.
3. Understand various flower and fruits types.
4. Students will gain the basic information regarding section work and anatomy.

SEM I Paper –III: BO 113:

PRACTICAL BASED ON BO 111 & BO 112

1. Students learn to carry out practical work, in the field and in the laboratory.
2. This practical beneficial for systematic study of plants and their commercial applications for society
3. Economic botany helps to know the procedure for cultivation of important forms
4. They gain introductory experience in applying techniques and skills to study the structural details and the role.
5. Students will gain the basic information regarding plant part section work and anatomy.

SEM –II PAPER –I: BO-121:

PLANT LIFE AND UTILIZATION-II:

1. This paper deals with plant diversity of Pteridophytes, Gymnosperms, Angiosperms.

2. Students will aware and able to understand role of plant forms for food, feed and medicines.

3. Student would be able to cultivate commercially important plant forms for society.

SEM –II: PAPER –II: BO-122:

PRINCIPLES OF PLANT SCIENCES:

1. Aware of advanced knowledge of various disciplines in life science.

2. Knowing the concept - in basic plant sciences mainly plant physiology, molecular biology and its importance

3. Understand the agronomic mechanism and economic potential of various plant forms.

SEM –II:PAPER –III: BO 123: Practical BASED ON BO 121 & BO 122

1. Students learn to carry out practical work,

2. In the laboratory, They gain introductory experience in applying advanced technology and skills to study the structural details and their applications and limitation by selecting proper techniques for sustainable development.

3. Students aware and get more exposer about sophisticated instruments and hands on experience.

SECOND YEAR B.Sc.
BOTANY

SEM III PAPER-I: BO 231

TAXONOMY OF ANGIOSPERMS AND PLANT ECOLOGY:-

1. This paper deals basics of plant classification

3. Understand theoretical background based on plant classification mainly dicot and monocot

3. Current global scenario for plant conservation strategies with role of angiosperm plants

with the working of ecosystem and environmental relationships for stable ecosystem and its impact on society.

SEM III PAPER-II:

PLANT PHYSIOLOGY: - BO 232

1. This paper deals with theoretical basis for increasing the total productivity of plants,
2. Aware with improving the nutritional value and raising the quality of their tissues and organs for use in industry.
3. Able to understanding the basic physiological mechanism based in flowering plants.

SEM III: PAPER-III:

BO 233 PRACTICALS: -

1. Students learn to carry out practical work, in the field and in the laboratory, with minimal risk.
2. They get knowledge in applying techniques and skills to study the structural details and the role of plants in sustainable development.
3. Students will gain practical experience with hands-on technique.

SEM IV :PAPER-I:

BO 241 PLANT ANATOMY AND EMBRYOLOGY:

1. This paper deals with familiar with history of microscopy and to lean different techniques of anatomy and their role in development of healthy plant body.
2. Mechanism of flowering plant development from embryo to flowering stage.
3. Know the physiological role of various plant species.

SEM IV: PAPER-II:

BO 242 PLANT BIOTECHNOLOGY:

1. This paper deals with applications in improvement in food quality, processing and quantity 2. Know about basics of manufacturing in which simple cells and proteins can be manipulated to produce chemicals of plant origin for its commercial utilization to prepare food and nutritional products.

SEM III: PAPER-III:

BO 243 PRACTICALS:

1. Students learn to carry out practical work, in the field and in the laboratory, with minimal risk.

2. They get knowledge in applying techniques and skills to study the structural details and the role of plants in sustainable development with commercial applications.

THIRD YEAR B.Sc. (SEM V)
Botany

SEM V:

BO. 331Cryptogamic Botany:

1. Curricula include the life cycles of cryptogrammic plant species and it correlate with experimental techniques.
2. This syllabus is practical based and deals with basic information of non-flowering primitive plants.
3. Students learn and understand the vegetative and developmental stages of non flowering plants.

SEM V:

BO. 332: Cell and Molecular Biology:

1. The basic terminology in these fundamental streams like cell and molecular biology.
2. The student's participation with laboratory experiments for understanding the basic principles of life sciences.
3. Understanding the mechanism of genetic make of all life forms.
4. Students gain the information based on cellular and molecular mechanism during life processes.

SEM V:

BO. 333 Genetics and Evolution:

1. Students understand different terms related to basic genetics and its principle.
2. This streams mainly deals with basic terms and subject application in evolution.
3. Students determine and analysis of laws of the inheritance.

SEM V:

BO. 334 Spermatophyta and Paleobotany:

1. Students aware about the classification of plants.
2. Students gain the importance of plant classification and its types.

3. Students understand the basic terminology based on various morphological aspects.

4. Chapters are deals with important terminology in the angiosperm and taxonomy. The paleobotany.

5. Syllabus mainly focuses the geological time scale and origin of modern plants on earth.

SEM V: BO. 335

Horticulture and Floriculture:

1. Syllabus deals with information on economically important plant species which are commercialized for the local and international market.

2. Some aspects like habitat, growth condition, production of healthy plantlets and cultivation techniques.

3. Students understand the marketing strategies of economical importance flowering plants.

4. Students aware the physiological aspects based on the mode of flowering and management of by-products in floriculture.

SEM V: BO. 336

Computational Botany:

1. This syllabus mainly deals with basic concept of computer technology.

2. This includes the some application and computer programme helpful for analysing the data in life science experiments.

3. Students understanding the basic programming methodology in statistical analysis in life sciences data.

THIRD YEAR B.Sc.

SEM VI:

SEM VI

BO. 341 Plant Physiology:

1. This subject syllabus based on the basic life science process in relation to the plant metabolism and catabolism process.

2. It linked with interrelation between plant adaptations to external environment.

3. The included chapters deal with plant metabolic cycles with Photosynthesis and Respiration process.

4. Students get familiarized with all basic terminology and mechanism in plant physiology.

SEM VI

BO. 342 Plant Ecology and Biodiversity:

1. Syllabus framed for this subject is concern with all environmental burning aspects of global scenario, also deals with all basic ecological information.

2. Advanced ecological concepts give the idea regarding the impact of pollution on human health and on ecological cycles.

3. Students understand advanced areas of local ecosystem maintenance through various conservation strategies and laws.

4. Students gain the importance of ethnobotanical information for ecosystem conservation.

SEM VI

BO. 343 Plant Pathology :

1. This curriculum beneficial for agriculture, Horticulture and crops streams.

2. The types of various diseases and its effect on crop production.

3. Syllabus also concern with preventive measure should be taken to avoid the harm full diseases.

4. Students understand advanced areas of pathological techniques for crop protection through biological control.

SEM VI BO. 344 Medicinal and Economic Botany:

1. This subject deals with system of medicines and its application for day to day life.

2. Students aware the medicinal value of plants, which give specific effect on body parts.

3. Understand the preparation steps for various Ayurvedic formulations.

SEM VI BO. 345

Plant Biotechnology:

1. Innovative and recently findings in plant sciences included in this chapters.

2. Students understand the various techniques applied in life sciences.

3. Syllabus giving basic information regarding the plant biotechnology and its application in agriculture, Horticulture, medicinal and industrial crops.

SEM VI BO. 346

Plant Breeding and Seed Technology:

1. To expose students plant propagation technique this will be beneficial for the students to understand to create a new variety of medicinal and agronomic crops.

2. Syllabus giving basic information of plant improvement through advanced techniques.

3. Know about basics of Factors affecting the production of high yielding variety in important crop species.

SEM VI BO. 247 PRACTICALS (Practical based on BO. 331, 332 and **BO. 341, 342)**

1. This syllabus is practical based and deals with basic information of reproductive plant parts of non-flowering primitive plants.

2. Students aware about the classification of plants

2. They get knowledge in applying techniques and skills to study the structural details and the role of plants in sustainable development with commercial applications.

SEM VI BO 248 PRACTICALS (Practical based on BO. 333, 334 and **BO. 343, 344)**

1. This subject deals with system of medicines and its application for day to day life.

2. Students aware the medicinal value of plants, which give specific effect on body parts.

3. Understand the preparation steps for various Ayurvedic formulations.

4. They get knowledge in applying techniques and skills to study the structural details and the role of plants in sustainable development with commercial applications.

SEM VI BO 249 PRACTICALS (Practical based on BO. 335, 336 BO. 345, 346)

1. To expose students plant propagation technique this will be beneficial for the students to understand to create a new variety of medicinal and agronomic crops.

2. Discuss the types for plant improvement through advanced techniques.

3. Know about basics of Factors affecting the production of high yielding variety in important crop species.

Department of Botany
M.Sc (Botany)
Programme Outcome

1. Understand the scope and significance of the discipline.
2. Imbibe love and curiosity towards nature through the living plants.
3. In order to make students open-minded and curious, we try our best to enhance and develop a scientific attitude.
4. We make the students fit for the society by enabling them to work hard.
5. Make the students exposed to the diverse life forms.
6. Make them skilled in practical work, experiments, laboratory equipment and to Interpret correctly on biological materials and data.
7. Develop interest in Biological research.
8. Encourage the students to do research in related disciplines.
9. Develop a thirst to preserve the natural resources and environment.
10. Develop the ability for the application of acquired knowledge in various fields of life
so as to make our country self-sufficient
11. Appreciate and apply ethical principles to biological science research and studies

Programme Specific Outcome

PSO1 Student gets understand scope and significance of life sciences. The classification of plants from cryptogams to Spermatophyte. Identification of the flora within field enhances basics of plants. Study of biodiversity in relation to habitat will correlates with climate change, land and forest degradation. Application of Botany in agriculture is through study of plant pathology.

PSO2 To understand molecular techniques like DNA Barcoding. Understand the ultra-structure and function of cell membranes, cell
Communications, signalling, genetics, anatomy, taxonomy, ecology and plant Physiology and biochemistry. To understand the multi functionality of plant cells in production of fine chemicals and their wide spread industrial applications.

PSO3 Students get knowledge of production and use of bio-fertilizers, bio-pesticides, bio insecticides, bio fungicides and its applications in sustainable agriculture. Molecular and Physiological adaptations in plants in response to biotic and abiotic stress. Genes responsible for stress tolerance genetic engineering of plants.

PSO4 Students get acquainted with the different advanced technology mainly based

on agriculture production and sustainable utilisation of natural resources.

PSO5 To aware the post graduate students about conservation of biodiversity through tissue culture techniques which is a need of time.

PSO6 Students able to understand the sophisticated techniques based on biotechnological approaches.

PSO7 Students use biological science software based on Bioinformatics and advanced computing

PS08 In this course students can take up teaching at different levels, research work in research institutes and or industry, doctoral work, environment impact assessment, biodiversity studies, entrepreneurship, scientific writing relevant topics have been included in the curriculum.

PSO9 Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Botany in written and oral format.

PSO10 Analyze and interpret results generated through studies in botany, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject.

M.Sc I (Botany)
(Course Outcome)
Sem I

SEM I PAPER I

BO UT 111: PLANT SYSTEMATICS I

1. This paper deals with scientific morphological and anatomical study of plants
2. Students help to understand for correct plant identification,
3. Students know basic principle of classification and systematic study of plants.
4. Their commercial applications for society. Students knowing about various cryptogamic diversity and its various useful applications.
5. Students also understand the advanced plant classification.

SEM I PAPER II

BOUT 112 CELL BIOLOGY AND EVOLUTION

1. The basic terminology In these fundamental streams like cell biology concept.

2. Basic principal of molecular biology in life sciences.

3. The student's participation with laboratory experiments for understanding the basic principles of life sciences.

SEM I PAPER III BOUT 113

CYTOGENTICS AND PLANT BREEDING

1. It is fundamental branch of Botany, its syllabus deals with a basic plant propagation technique and plant improvement.

2. Students understand will be beneficial for the students to understand to create a new variety of medicinal and agronomic crops.

3. Understand basic in diplodisation and triplodisation of crops plants.

SEM I PAPER IV:

BODT 114 BIOFERTILIZER AND ALGAL TECHNOLOGY:

1. This paper deals with types and Scope of bio fertilizers with their production technology on the basis of various strains selection.

2. The microorganism in bio fertilizer renovate the soils natural nutrients cycle and build soil organic matter. Through the use of biofertilizers,healthy plants can be grown and enhance the sustainability and the health of the soil.

3. They reduce the use of synthetic fertilizers and pesticides. Students will know about potential of various algae with their commercial application in foods, pharmaceutical industries.

SEM I Practical:

BODP 114: Practical based on l14

1. Student understand the isolation procedure *Azospirillum, Azotobacte, Rhizobium*. and P-solubilizers and Cyanobacteria.
2. Students get aware hands on training on equipment in Bio fertilizer unit
3. Isolation of AM fungi -Wet sieving method and sucrose gradient method.
4. Mass multiplication of Bio-fertilizers.

SEM I

BOUP 115: Based on BOUT11, 112, 113

1. Gain adequate knowledge on comparative account of various algal divisions.

2. Study and impart knowledge about the occurrence, distribution, structure and life history of lower plants such as algae, fungi, lichens, bryophytes, pteridophytes and gymnosperms

3. Learn the phylogeny and evolutionary concepts in lower group of organisms. Know about role of fossil in oil exploration and coal excavation, study of paleopalynology. Learn about structural organization and function of intracellular organelles.

3. Gain knowledge on the organization of genes and chromosomes. Study about the structure of atoms, molecules and chemical bonds & Composition, structure and function of biomolecules Know in detail about breeding systems. Learn the techniques of Hybridization 4. Learn about the selection methods for self-pollinated, cross pollinated plants. Understand the role of mutations in plant breeding

SEM II

SEM II PAPER I

BOUT 121 PLANT SYSTEMATICS II

1. This paper deals with scientific morphological and anatomical study of plants which helps for correct identification.

2. Student understand molecular level classification and systematic study of higher plants.

SEM II PAPER II

BOUT 122 MOLECULAR BIOLOGY

1. The basic terminology In these fundamental streams like cell and molecular biology.

2. Students understand the mechanism of recombination and transposition, protein synthesis and role of various bacteria for genetic transformation.

3. The student's participation with laboratory experiments for understanding the basic principles of life sciences.

SEM II PAPER III

BOUT 123 BIOCEHMISTRY

1. This syllabus mainly deals with basic concept of biochemistry, fundamental aspect of various biomolecules.

2. In this syllabi learn about phytochemical investigation, extraction method, qualitative and quantitative analysis of secondary metabolites with the applications.

3. Students will learn about various biomolecules such as carbohydrates, protein and lipid, amino acid with their properties, classification, structure and uses.

SEM II PAPER IV

BODT 124 FLORICULTURE AND NURSERY MANAGEMENT

1. Syllabus deals with information on economically important plant species which are commercialized for the local and international market.

2. Some aspects like habitat, growth condition, production of healthy plantlets and cultivation techniques.

3. Students understand the role of entrepreneur during this course work in nursey management and marketing.

SEM II Practical

BODP 124: Practical Based on 124

1. The student able to understand basis of plant propagation techniques in horticultural and floriculture plant species.

2. Students gain the information about the importance of nursery in horticulture practices.

3. Students understand the advanced technologies in floriculture and horticulture sectors.

SEM II Practical BOUP 125: Practical Based on BOUT 121, 122. 123

1. The course focuses on morphology, anatomy, reproduction and evolution in Pteridophytes and Gymnosperms.

2. The students develop the basic understanding of important characteristics, anatomy, reproduction and evolution along with economic important e of these two groups.

3. This course aims to add to understanding of the students about the diversity of plants, their Description, Identification, Nomenclature and their classification including recent advances in the field

4. The students will know about the systematic position of Generas, Species and , Families. 2. The students develop knowledge about plant nomenclature.

5. Students will understand the role of plant cytoskeleton and accessory proteins in major cellular processes of plants. 3. Student will focus on various components of the

eukaryotic nuclear and organellar genome, with special reference to their regulatory role

6. Student will understand importance of metabolism to maintain living state of cells. They also understand role of nitrogen cycle in environment. CO4: Students will understand how enzymes serve important function in body, in digestion and metabolism. They have developed knowledge about pathways of water through xylem and phloem**.**

M.Sc II (BOTANY) SEM III

SEM III PAPER I

BOUT 231 COMPUTIAONAL BOTANY

1. This syllabus mainly deals with basic concept of computer technology, introduction of basic bio statistics, correlation and regression with various test.

2. Advanced statistical techniques based on advanced excel and other software's. This includes the some application and computer programme helpful for analysing the data in life science experiments. Introduce fundamental.

3. Along with statistics students understand the steps involved in proposal, research article and thesis writing. Describe basic principles of bioinformatics and bioanalytical techniques.

SEM III PAPER II

BOUT 232 DEVELOPMENTAL BOTANY

1. Describe basic principles of plant development deals with intrinsic and extrinsic factors, embryology, developmental stages of embryo and endosperm, physiological and molecular basis of plant parts development.

2. Students understand molecular and cellular events in plants during cell differentiation.

SEM III PAPER III

BOUT 233 PLANT PHYSIOLOGY

1. This subject syllabus based on the basic life science process in relation to the plant metabolism and catabolism process. It linked with interrelation between plant adaptations to external environment.

2. The included chapters deal with plant metabolic cycles with Photosynthesis and Respiration process. Students understand outline of secondary metabolites synthesis pathway.

PAPER IV

BODT 234 MYCOLOGY

1. This curriculum beneficial for understanding fungal classification and their significance.

2. Ecological importance of fungal species like mycorrhiza, and its affinities of various classes.

3. General characters and variation of fungal classes of higher fungi.

4. Students understand the ecologically and economically important fungal species.

Practical

BODP 234 :

Based on BODT 234 Mycology

1. Handle instruments related to fermentation. Conversant with Spectroscopic, Chromatographic, techniques, HPLC, HPTLC, and various techniques

2. Screening of fungi for acid, alcohol, cellulose, amylase and various organic acid production.

3. Students understand genetic characterisation mechanism of high valued active metabolites synthesis through fungi.

BOUP 235: Based on BOUT (Practical based on 231. 232 & 233).

After completion of the course the students are familiar with various physiological aspects involved in the plant development.

1. Also the role of enzymes in it and mechanism of photosynthesis, respiration, nitrogen and lipid metabolism. The students are able to isolate starch, pectin and various nutritive products from the plants. Qualitative and quantification of the plant contents and its biochemistry and mode /mechanism of synthesis etc.

2. Know about plants anatomical structure, their developmental patterns. Plant reproductive parts development of male, female gametophytes and fruits. Vascular tissues and its constituents by sections and maceration, wood anatomy, TS, TLS and RLS.

3. Mechanical tissues (Collenchyma, Sclerenchyma, Stone cells and Xylem), Secretary tissues (Mucilage Canals, Resin canals, Nectaries, and oil glands), laticifers (Latex cells and Vessels). Normal and abnormal secondary growth etc.

4. Classify different types of Biological Databases. Introduction to the basics of sequence alignment and analysis. ¬ Explain about different types of protein and other organism specific databases

M. Sc. II (BOTANY)

SEM IV

PAPER I BOUT 241 BOTANICAL TECHNIQUES

1. Students acquainted and understand the terminology in Advanced molecular, cellular, computational (bioinformatics) techniques, microscopy, microtomy and micrometry.

2. Knowledge about some importance aspects based on qualitative and quantitative data analysis mainly based on sophisticated techniques TLC, HPLC, Gas Chromatography, spectrophoretic and electrophoretic techniques.

3. Explain the principle , instrumentation , and Applications Principle of Spectrophotometers and centrifugation.

PAPER II BOUT 242

ADVANCED ECOLOGY

1. Subject syllabus based on level of species diversity, ecosystem types and classification, stability, biome, concern issues of forest, type of agri-economy zones, filed ecology and its conservation, concept of gene pool, RET concept, all environmental burning aspects of, environmental biotechnology.

2. Advanced ecological concepts give the idea regarding the impact of pollution on human health and on ecological cycles.

3. Students understand the human and ecology relationship and Environmental assessment.

PAPER III BODT 243

APPLIED MYCOLOGY:

1. This curriculum beneficial for understanding fungi and its ecological role, agriculture and forest pathology, significance and importance, bio fertilizers, medicinal, industrial mycology and food technology.
2. Understand production of industrial economically important metabolites like antibiotics, alcohol and enzymes.

PAPER IV BODT 244

RESEARCH METHODOLOGY:

1. Students aware about the basic concept of research data collection, observation and documentation.
2. Overview of biological statistical analysis terminology and problems.
3. Students will understand ethics and good practices in scientific writing.

Practical:

BOUP 245: based on BOUT 241 and BOUT 242

1. On completion of this course the students are able to analyse various types of ecosystems, correlate different ecosystems.
2. To analyze the threat and suggest conservative measures. The students are also trained in the environmental impact analysis. Students are able to analyze, monitor various physical, chemical and biological properties of soil water and air.
3. Students will know about the use of computational approach to analyze, manage & store biological data. They are able to know, the use of information technology in biotechnology for data storage, Analyzing the DNA sequences
4. Students Learn about basics of biosafety and good lab practices like safe chemical handling, Hazardous wastes management, Safe and proper use of lab equipments. Learn about the principles of various basic and advanced microscopy Know about Camera lucida, Digital cameras, photomicrography and image analysis. Gain

knowledge on methods of molecular separation and characterization. Familiarize with floristic survey methods like RI, IVs, QUVs & CI.

BODP 243 based on BODT 243 Applied Mycology

1. Student understand the Fermentation Media - Media Composition, Growth Factors, Precursors, Antifoaming Agents, Inoculums Media, Media Economics Scale up-Off

2. Fermentation- Fermentation tank, Laboratory fermenters, Pilot-Plant fermenters, Designing of fermenters. Industrial Effluent- Application of Industrial waste, Management of Industrial waste, Management of Industrial waste disposal.

3. Biological waste management -Objectives of Biological treatment, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Imhoff-tanks, Slude-Digestion tanks, Culture Maintenance - Slants and broths, Freezing liquid Nitrogen, Importance of Culture maintenance with reference to R&D laboratories.

BOUP 244 Project Work

On completion of the research project the students will be able to-

1. Design the experiments of his interest and execute it
2. Trained in handling of the basic and advance instruments
3. Generate the data, compile and analyze and interpret the data.
4. Presentation skill is developed in the students
5. The student is ready to work in any R&D setup

14. Department of Mathematics

Programme Outcome (PO)

1. Gain sound knowledge on fundamental principles and concepts of Mathematics and computing with their applications related to Industrial, Engineering, Biological and Ecological problems.
2. Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering.
3. Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
4. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
5. 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.
6. Be capable of undertaking suitable experiments/research methods while solving the real-life problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results.
7. Develop written and oral communications skills in order to effectively communicate design, analysis and research results.
8. Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.
9. Acquire competent positions in industry and academia as well.

Programme Specific Outcome (PSO)

1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of in numerous power of mathematical ideas and tools and know how to use them by modelling, solving and interpreting.
2. To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences.
3. To develop a competitive attitude for building a strong academic - industrial collaboration, with focus on continuous learning skills.
4. Enhancing students' overall development and to equip them with mathematical modelling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
5. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
6. Enabling students to Gauge the hypothesis, theories, techniques and proofs provisionally.

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE
Board of Studies in Mathematics Syllabus for F. Y. B. Sc
Subject: MATHEMATICS (With effect from June 2019 - 2020)

Course Outcomes

Semester – I

MT 111- Algebra

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT 112: CALCULUS - I

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

Semester - II

MT 121-Analytical Geometry

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT 122: Calculus-II

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE
Board of Studies in Mathematics Syllabus for S. Y. B. Sc
Subject: MATHEMATICS (With effect from June 2020)

Semester – III

MT-231: Calculus of Several Variables

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT-232(A): Numerical Methods and It's Applications

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT-232(B) : Graph Theory

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

Semester - IV

MT-241: Linear Algebra

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT 242(A): Vector Calculus

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

MT-242(B): Dynamical Systems

Course Learning Outcomes: The course will enable the students to:

1. The mathematical maturity of students in their current and future courses shall develop.
2. The student develops theoretical, applied and computational skills.
3. The student gains confidence in proving theorems and solving problems

Semester-V

DSE-1A: MT 351: Metric Spaces (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Understand the introductory concepts of metric spaces;
2. Correlate these concepts to their counter parts in modern analysis by
3. studying examples;
4. Learn to analyse mappings between spaces.
5. Attain background for advanced courses in real analysis, functional
6. analysis, and topology.
7. Appreciate the abstractness of the concepts such as open balls, closed
8. balls, compactness, connectedness etc. beyond their geometrical
9. imaginations.

DSE-1B: MT: 352 Real Analysis-I (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Learn the basic facts in logic and set theory
2. Learn to define sequence in terms of functions from N to a subset of R and to understand several properties of the real line.
3. Recognize bounded, convergent, divergent, Cauchy and monotonic
4. sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.
5. Use the ratio, root, alternating series and limit comparison tests for
6. convergence and absolute convergence of an infinite series of real numbers

DSE-2A: MT-353: Group Theory (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc;
2. Analyze consequences of Lagrange's theorem
3. Learn about structure preserving maps between groups and their consequences.
4. Explain the significance of the notion of cosets, normal subgroups, and factor groups.

DSE-2B: MT-354- Ordinary Differential Equations (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Understand the genesis of ordinary differential equations.
2. Learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.
3. Grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations

DSE-3A: MT 355(A): Operations Research (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Analyze and solve linear programming models of real-life situations.

2. The graphical solution of LPP with only two variables, and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed.
3. The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem

DSE-3A: MT-355(B): Differential Geometry (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Gain an understanding to solve problems with the use of differential geometry to diverse situations in mathematical contexts.
2. Develop different properties associated with curves and surfaces.
3. Demonstrate a depth of understanding in advanced mathematical topics in relation to geometry of curves and surfaces Learn to analyze mappings between spaces.
4. Apply the theory of differential geometry to specific research problems in mathematics or other fields.

DSE-3A: MT 355(C): C-Programming (2 credits)

Course Learning Outcomes: After the completion of this course, the students will be able to develop applications.

DSE-3B: MT-356(A): Machine Learning-I (2 credits)

Course Learning Outcomes: Upon successful completion of this course the student will be able to:

1. Gain knowledge about basic concepts of Machine Learning.
2. Identify machine learning techniques suitable for a given problem.
3. Solve the problems using various machine learning techniques.

DSE-3B: MT-356(B): Number Theory (2 credits)

Course Learning Outcomes: This course will enable the students to learn:

1. some of the open problems related to prime numbers.
2. about number theoretic functions and modular arithmetic.
3. the Law of Quadratic Reciprocity and other methods to classify numbers as primitive roots, quadratic residues, and quadratic non-residues.

DSE-3B: MT-356 (C): Laplace Transform and Fourier Series (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Students will be able to know the use of Laplace transform in system modelling, digital signal processing, process control.
2. Solve an initial value problem for an nth order ordinary differential equation using the Laplace transform.
3. Find the Fourier series representation of a function of one variable

SEC-I: MT -3510: Programming in Python–I

Course Learning Outcomes: The course will enable the students to:

1. The student will be able to explain basic principles of Python programming language.
2. The student will implement object-oriented concepts.

SEC-II: MT-3511: LaTeX for Scientific Writing

Course Learning Outcomes: The course will enable the students to:

1. Write a simple LaTeX input document based on the article class.
2. Turn the input document into pdf with the pdf program.
3. Format Words, Lines, and Paragraphs.
4. Understand how to present data using tables. Latex

Semester-VI

DSE-4A: MT - 361: Complex Analysis

Course Learning Outcomes: The course will enable the students to:

1. Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations.
2. Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula.
3. Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals.
4. Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.

DSE-4B: MT: 362 Real Analysis-II

Course Learning Outcomes: The course will enable the students to:

1. Some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration.
2. Beta and gamma functions and their properties.
3. Recognize the difference between pointwise and uniform convergence of a sequence of functions.
4. Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.

DSE-5A: MT: 363 Ring Theory

Course Learning Outcomes: The course will enable the students to:

1. The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms.
2. Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.

3. Appreciate the significance of unique factorization in rings and integral domains.

DSE-5B: MT 364: Partial Differential Equations

Course Learning Outcomes: The course will enable the students to:

1. Formulate, classify and transform partial differential equations into canonical form.
2. Solve linear partial differential equations using various methods and apply these methods in solving some physical problems.
3. Solve Laplace equations using various analytical methods demonstrate uniqueness of solutions of certain kinds of these equations.

DSE-6A: MT365 (A): Optimization Techniques

Course Learning Outcomes: The course will enable the students to:

1. Understand fundamentals of Network Analysis using CPM and PERT.
2. Solve a sequencing Problem for various jobs and machines.

DSE-6A: MT 365(B): Calculus of Variation and Classical Mechanics

Course Learning Outcomes: The course will enable the students to:

1. Understand problems, methods and techniques of calculus of variations.
2. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body.
3. Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.
4. Determine the centre of gravity of some materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.

DSE-6A: MT 365 (C): Financial Mathematics (2 credits)

Course Learning Outcomes: The course will enable the students to:

1. Describe and explain the fundamental features of a financial instruments.
2. Demonstrate a clear understanding of financial research planning, methodology and implementation.
3. Demonstrate understanding of basic concepts in linear algebra, relating to linear equations, matrices, and optimization.
4. Demonstrate understanding of concepts relating to functions and annuities.

DSE-6B: MT-366(A): Machine Learning-II (2 Credits)

Course Learning Outcomes:

1. The students learning outcomes are designed to specify what the students will be able to perform after completion of the course: Ability to select and

implement machine learning techniques and computing environment that are suitable for the applications under consideration.

DSE-6B: MT- 366(B): Computational Geometry

Course Learning Outcomes: The course will enable the students to:

1. Construct algorithms for simple geometrical problems.
2. Characterize invariance properties of Euclidean geometry by groups of transformations.
3. Describe and construct basic geometric shapes and concepts by computational means.

DSE-6B: MT-366(C): Lebesgue Integration (2 Credits)

Course Learning Outcomes: The course will enable the students:

1. To understand the concept of measure and properties of Lebesgue measure.
2. To study the properties of Lebesgue integral and compare it with Riemann integral.

SEC-III: MT-3610: Programming in Python –II

Course Learning Outcomes: The course will enable the students to:

1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc.
2. Study graphics and design and implement a program to solve a real-world problem.
3. The students will implement the concepts of data with python and database connectivity.

SEC-IV: MT-3611: Mathematics into LaTeX

Course Learning Outcomes: The course will enable the students to:

1. Typeset mathematical formulas, use nested list, tabular and array environments.
2. Import figures and pictures that are stored in external files.

15. Department of Computer Science

B. Sc. (computer science)

Program Outcome (PO)

1. An ability to identify, formulate, and develop solutions to computational challenges.
2. An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.
3. An ability to apply design and development principles in the construction of software systems of varying complexity.
4. An ability to analyse impacts of computing on individuals, organizations, and society.
5. An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.

Program Specific Outcome (PSO)

1. Develop problem solving abilities using a computer
2. Build the necessary skill set and analytical abilities for developing computer-based solutions for real life problems.
3. Imbibe quality software development practices.
4. Create awareness about process and product standards
5. Train students in professional skills related to Software Industry.
6. Prepare necessary knowledge base for research and development in Computer Science
7. Help student's build-up a successful career in Computer Science

Course Outcome (CO)

F.Y.B.Sc. (Comp.Sci.)

Sem-I

Course Type: Core Credit Course
Code: CS101 Course
Title : Problem Solving Using Computer and 'C' Programming – I
Course Objectives:

1. To introduce the foundations of computing, programming and problem- solving using computers.
2. To develop the ability to analyze a problem and devise an algorithm to solve it.
3. To formulate algorithms, pseudocodes and flowcharts for arithmetic and logical problems
4. To understand structured programming approach.
5. To develop the basic concepts and terminology of programming in general.
6. To implement algorithms in the 'C' language.
7. To test, debug and execute programs.

Course Outcomes:- On completion of this course, students will be able to :

1. Explore algorithmic approaches to problem solving.
2. Develop modular programs using control structures and arrays in 'C'.

Course Type: Core Credit
Course Code: CS102
Course Title : Database Management Systems
Course Objectives:

1. To understand the fundamental concepts of database.
2. To understand user requirements and frame it in data model.
3. To understand creations, manipulation and querying of data in databases.

Course Outcomes: On completion of the course, student will be able to–

1. Solve real world problems using appropriate set, function, and relational models.
2. Design E-R Model for given requirements and convert the same into database tables.
3. Use SQL

Course Type: Core Credit
Course Code:CS103
Title : Practical course on Problem Solving using Computer and 'C' programming

and Database Management Systems

Course Objectives:

1. To understand the program development life cycle.
2. Solve simple computational problems using modular design and basic features of the 'C' language.
1. Understand basic database management operations.
2. Design E-R Model for given requirements and convert the same into database tables.

Course Outcomes: On completion of this course, students will be able to :

1. Devise pseudocodes and flowchart for computational problems.
2. Write, debug and execute simple programs in 'C'.
3. Create database tables in postgreSQL.
4. Write and execute simple, nested queries

Sem-II

Paper - I

Course Type: Core Credit

Course Code: CS201

Course Title : Advanced 'C' Programming

Course Objectives :-

1. To study advanced concepts of programming using the 'C' language.
2. To understand code organization with complex data types and structures.
3. To work with files.

Course Outcomes:- Student will be able to :-

1. Develop modular programs using control structures, pointers, arrays, strings and structures
2. Design and develop solutions to real world problems using C

Paper - II

Course Type: Core Credit Course

Code: CS202 Course

Title : Relational Database Management Systems

Course Objectives:

1. To teach fundamental concepts of RDBMS (PL/PgSQL)
2. To teach database management operations
3. Be familiar with the basic issues of transaction processing and concurrency control
4. To teach data security and its importance

Course Outcomes: On completion of the course, student will be able to–

1. Design E-R Model for given requirements and convert the same into database tables.
2. Use database techniques such as SQL & PL/SQL.
3. Explain transaction Management in relational database System.
4. Use advanced database Programming concepts

Paper - III

Course Type: Core Credit Course

Code:CS203 Title : Practical Course on Advanced 'C' Programming and Relational Dstabase Management Systems

Course Objectives:

1. To solve real world computational problems.
2. To perform operations on relational database management systems.

Course Outcomes:-On completion of this course, students will be able to :

1. Write, debug and execute programs using advanced features in 'C'.
2. Use SQL & PL/SQL.
3. Perform advanced database operations.

F.Y.B.Sc.(Comp.Sci.) Mathematics

Course Objectives:

1. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.
2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
3. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
4. 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.
5. 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 Outcome: Upon successful completion of this course, the student will be able to:

1. A students should be able to work with graphs and identify certain parameters and properties of the given graphs.
2. A students should be able to perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms.
3. A students should be able to solve basic exercises of the type: given a graph with properties X, prove that the graph also has property Y.
4. A students should develop an appreciation for the literature on the subject and be able to read and present results from the literature.
5. A students should be able to write cohesive and comprehensive solutions to exercises and be able to defend their arguments.

F.Y.B.Sc.(Comp.Sci.) Statistics

SEM-I

Course Objectives: At the end of the course students are expected to be able

1. To tabulate and make frequency distribution of the given data.
2. To use various graphical and diagrammatic techniques and interpret.
3. To compute various measures of central tendency, dispersion, Skewness and kurtosis.
4. To fit the Binomial and Poisson distributions.
5. To compute the measures of attributes. The process of collection of data, its condensation and representation for real life data.
6. To study free statistical software's and use them for data analysis in project.

Course Outcome: Upon successful completion of this course, the student will be able to:

1. Knowledge of various types of data, their organisation and evaluation of summary measures such as measures of central tendency and dispersion etc.
2. Insights into preliminary exploration of different types of data.
3. Knowledge of correlation, regression analysis, regression diagnostics, partial and multiple correlations.

SEM II

Course Objectives: At the end of the course students are expected to be able

1. To understand the relationship between two variables using scatter plot.
2. To compute coefficient of correlation, coefficient of regression.
3. To fit various regression models and to find best fit.
4. To fit the Normal distribution.
5. To understand the trend in time series and how to remove it.
6. To apply inferential methods for real data sets.
7. To generate model sample from given distributions.

8. To understand the importance and functions of different statistical Organizations in the development of nation.

Course Outcome: Upon successful completion of this course, the student will be able to:

1. Knowledge of bivariate data, scatter diagram, its interpretation, concept of correlation, Positive correlation, negative correlation, zero correlation.
2. Understands the Karl Pearson's coefficient of correlation, properties of correlation coefficient, Interpretation of correlation coefficient, coefficient of determination with interpretation.
3. Understands Concept of linear and nonlinear regression.

F.Y.B.Sc. (Comp. Sci.) (Electronics)
SEM-I
Paper I
ELC-111: Semiconductor Devices and Basic Electronic Systems
(2 Credits, 36 lectures)

Course Objectives:

1. To study various types of semiconductor devices
2. To study elementary electronic circuits and systems

Course Outcome:

1. Students learn the characteristics and working of electronic devices
2. Understands the various device models
3. Develop skills in analysis and design of analog circuits

PAPER II
ELC 112: Principles of Digital Electronics
(2 Credits, 36 lectures)

Course Objectives:

1. To get familiar with concepts of digital electronics
2. To learn number systems and their representation
3. To understand basic logic gates, Boolean algebra and K-maps
4. To study arithmetic circuits, combinational circuits and sequential circuits

Course Outcome:

1. Students understand sequential and combinational logic design

SEM-II
PAPER I
ELC 121: Instrumentation Systems

(2 Credits, 36 lectures)

Course Objectives:

1. To study Instrumentation System
2. To study various blocks of Instrumentation System
3. To study Smart Instrumentation System

Course Outcome:

1. Understand the configurations and functional descriptions of measuring instruments
2. Understand the basic performance characteristics of instruments
3. Understand the working principles of various types of sensors and transducers and their use in measuring systems
4. Study the techniques involved in various types of instruments
5. Understand the relevance of electronics with other discipline

PAPER II

ELC 122 : Basics of Computer Organisation

(2 Credits, 36 lectures)

Course Objectives:

1. To get familiar digital sequential circuits
2. To study Basic computer Organization
3. To study Memory architecture

Course Outcome:

1. Understand the architecture of Memory
2. Learn software techniques to embed codes in to the systems

S.Y.B.Sc. (Comp. Sci.)

SEM-I

Computer Science Paper - I

Course Code: CS 231

Title : Data Structures and Algorithms – I

Course Objectives:

1. To learn the systematic way of solving problem
2. To understand the different methods of organizing large amount of data
3. To efficiently implement the different data structures
4. To efficiently implement solutions for specific problems
5. To apply linear data structures.

Course Outcomes: On completion of the course, student will be able to

1. To use well-organized data structures in solving various problems.
2. To differentiate the usage of various structures in problem solution.
3. Implementing algorithms to solve problems using appropriate data structures.

Computer Science Paper -II
Course Code: CS 232
Title : Software Engineering
Course Objectives:

1. To get knowledge and understanding of software engineering discipline.
2. To learn analysis and design principles for software project development.

Course Outcomes: On completion of the course, student will be able to

1. Compare and chose a process model for a software project development.
2. Identify requirements analyze and prepare models.
3. Prepare the SRS, Design document, Project plan of a given software system.

SEM-II
Computer Science Paper - I
Course Code: CS 241
Title : DATA STRUCTURES AND ALGORITHMS-II
Course Objectives:

1. To learn the systematic way of solving problems
2. To design algorithms
3. To understand the different methods of organizing large amount of data
4. To efficiently implement the non-linear data structures

Course Outcomes: On completion of this course students will be able to

1. Implementation of different data structures efficiently
2. Usage of well-organized data structures to handle large amount of data
3. Usage of appropriate data structures for problem solving

Computer Science Paper - I Semester II
Course Code: CS 242 Title: Computer Networks-I
Course Objectives:

1. To prepare students with basic networking concepts: data communication, protocols and standards, various topologies and applications of network.

Course Outcomes

1. Have a good understanding of the OSI and TCP/IP Reference Models and in particular have a good knowledge of Layers.
2. Understand the working of various protocols.

3. Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies

S. Y. B. Sc. (Comp. Sci.), Electronics
SEM-I
Paper-I: Microcontroller Architecture & Programming (ELC 231)
Course Objectives:

1. To study the basics of 8051microcontroller
2. To study the Programming of8051microcontroller
3. To study the interfacing techniques of 8051microcontroller
4. To design different application circuits using 8051microcontroller

Course Outcomes: On completion of the course, student will be able

1. To write programs for 8051 microcontrollers
2. To interface I/O peripherals to 8051 microcontrollers
3. To design small microcontroller-based projects

Paper-II, Digital Communication and Networking, ELC- 232
Course Objectives:

1. To introduce to all aspects of data communication system
2. To introduce various digital modulation schemes
3. To identify the need of data coding and error detection/correction mechanism.
4. To study bandwidth utilization techniques: multiplexing and Spectrum spreading
5. To know data link layer protocol: Media Access Control
6. To study OSI and TCP/IP models of Networking.

Course Outcomes: On completion of the course, student will be able

1. Define and explain terminologies of data communication
2. Understand the impact and limitations of various digital modulation techniques
3. To acknowledge the need of spread spectrum schemes.
4. Identify functions of data link layer and network layer while accessing communication link
5. To choose appropriate and advanced techniques to build the computer network

Paper III, Practical Course (ELC-233)
Course Objectives:

1. To get hands on training of Embedded C
2. To study experimentally interfacing of microcontroller
3. To design, build and test modulator and demodulators of digital communication

4. To build and test experimentally various techniques of wired communication
5. To develop practical skills of network setup

Course Outcomes: On completion of the course, student will be able

1. To design and build his/her own microcontroller-based projects.
2. To acquire skills of Embedded C programming
3. To know multiplexing and modulation techniques useful in developing wireless application
4. Do build and test own network and do settings.

SEM-II

Paper I: Embedded System Design (ELC-241)

Course Objectives:

1. To understand the concept of Embedded systems.
2. To study the design flow and available tools for an Embedded system.
3. To understand the implementation of embedded system using firmware and hardware components.
4. To acquire programming skills for the development of Embedded system design.
5. To develop practical skills for designing embedded system Applications.

Course Outcomes: On completion of the course, student will be able

1. To understand the difference between general computing and the Embedded systems.
2. To know the fundamentals of embedded systems.
3. Understand the use of Single board Computer (Such as Raspberry Pi) for an embedded system application.
4. Familiar with the programming environment to develop embedded systems and their interfaces with peripheral devices.
5. To develop familiarity with tools used to develop in an embedded environment.

Paper II: Wireless Communication and Internet of Things (ELC242)

Course Objectives:

1. To learn and understand applications of wireless communication system
2. To learn and understand cellular system
3. To learn and understand architecture of short-range Wireless Technologies
4. To learn and understand basics of Internet of Things
5. To study applications of IoT

Course Outcomes: Students will be able to

1. Know working of wireless technologies such as Mobile communication, GSM, GPRS
2. Become familiar with 3G and 4G Cellular Network Technologies for Data Connections.
3. Understand working principles of short-range communication application
4. Get introduce to upcoming technology of Internet of Things
5. Explore themselves and develop new IoT based applications

Paper III, Practical Course (ELC-243)

Course Objectives:

1. To use basic concepts for building various applications of embedded electronics.
2. To build experimental setup and test the circuits.
3. To develop skills of analyzing test results of given experiments.
4. Developing Trained Personals for educating and training for upcoming graduates in wireless communication.
5. Implement basic IoT applications on embedded platform

Course Outcomes: On completion of the course, students will be able

1. To design and develop own smart applications using Rasberry-Pi
2. To write Python program for simple applications
3. To build own IoT based system

S. Y. B. Sc. (Comp. Sci.) Mathematics

Course Objectives:

1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.
2. Reflecting the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science.
3. Enhancing students overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
4. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

Course Outcomes:

1. A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.
2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.

3. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
4. 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.
5. A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

T.Y.B.Sc. (Comp. Sci.)
Sem – I
Course Type: DSEC – I
Course Code: CS - 351
Course Title: Operating Systems – I
Course Objectives:

1. To understand the concept of operation system and its principle
2. To study the various functions and services provided by operating system
3. To understand the notion of process and threads

Course Outcomes: After completion of this course students will be able to understand the concept of

1. Processes and Thread Scheduling by operating system
2. Synchronization in process and threads by operating system
3. Memory management by operating system using with the help of various schemes

Course Code: DSEC - I
Course Code: CS - 352
Course Title: Computer Networks – II
Course Objectives

1. To understand different protocols of application layer.
2. To understand concepts of multimedia.
3. Explore the different methods used for Network/INTERNET security.

Course Outcomes: On completion of the course, student will be able to–

1. Student will understand the different protocols of Application layer.
2. Develop understanding of technical aspect of Multimedia Systems
3. Develop various Multimedia Systems applicable in real time.
4. Identify information security goals.
5. Understand, compare and apply cryptographic techniques for data security.

Course Type: DSEC – II
Course Code: CS - 353
Course Title: Web Technologies – I

Course Objectives:

1. To Design dynamic and interactive Web pages.
2. To Learn Core-PHP, Server-Side Scripting Language
3. To Learn PHP-Database handling

Course Outcomes: On completion of the course, student will be able to–

1. Understand how to develop dynamic and interactive Web Page

Course Type: DSEC – II
Course Code: CS - 354
Paper Title: Foundations of Data Science

Course Objectives:

1. Provide students with knowledge and skills for data-intensive problem solving and scientific discovery
2. Be prepared with a varied range of expertise in different aspects of data science such as data collection, visualization, processing and modelling of large data sets.
3. Acquire good understanding of both the theory and application of applied statistics and computer science based existing data science models to analyze huge data sets originating from diversified application areas.
4. Be better trained professionals to cater the growing demand for data scientists in industry.

Course Outcomes: On completion of the course, student will be able to–

1. Perform Exploratory Data Analysis
2. Obtain, clean/process, and transform data.
3. Detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization.
4. Demonstrate proficiency with statistical analysis of data.
5. Present results using data visualization techniques.
6. Prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection may affect conclusions.

Course Type: DSEC – III
Course Code: CS - 355
Course Title: Object Oriented Programming using Java – I

Course Objectives:

1. To learn Object Oriented Programming language
2. To study various java programming concept like Interface, File and Exception Handling etc.
3. To design User Interface using Swing and AWT

Course Outcomes: On completion of the course, student will be able to–

1. Understand the concept of classes, object, packages and Collections.
2. To develop GUI based application.

Course Type: DSEC - III
Course Code: CS - 356
Paper Title: Theoretical Computer Science
Course Objectives:

1. To understand the Finite Automata, Pushdown Automata and Turing Machine.
2. To understand the Regular Language, Context Free Language, Context Sensitive Language and Unrestricted Language.
3. To understand the relation between Automaton and Language

Course Outcomes: On completion of the course, student will be able to–

1. Understand the use of automata during language design.
2. Relate various automata and Languages.

Course Type: DSEC - I
Course Code: CS - 357
Course Title : Practical Course based on CS – 351
Course Objectives:

1. To understand the concept of process scheduling with the help of simulation.
2. To study the concept demand paging concepts in operating system.
3. To understand the working of operating system shell.

Course Outcomes: After completion of this course students will be able to understand the concept of

1. Process synchronization
2. Processes and Thread Scheduling by operating system
3. Memory management by operating system using with the help of various schemes

Course Type: DSEC - II
Course Code: CS - 358
Course Title: Practical Course based on CS - 353 and CS – 354

Course Objectives:

1. To Design dynamic and interactive Web pages.
2. To Learn Core-PHP, Server-Side Scripting Language
3. To Learn PHP- Database handling
4. To apply statistical, data pre-processing and visualization techniques on data sets

Course Outcomes:

1. Understand how to develop dynamic and interactive Web Page
2. Prepare data for use with a variety of statistical methods and recognize how the quality of the data may affect conclusions.
3. Perform exploratory data analysis

Course Type: DSEC - III
Course Code: CS - 359
Course Title: Practical Course based on CS – 355
Course Objectives: Covers the complete scope of the syllabus.

1. Bringing uniformity in the way course is conducted across different colleges.
2. Continuous assessment of the students.

Course Outcomes:

1. Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
2. Read and make elementary modifications to Java programs that solve real-world problems.
3. Validate input in a Java program.

Course Type: SECC – I
Course Code: CS-3510
Course Title: Python Programming
Course Objectives:

1. To introduce programming concepts using python
2. Student should be able to develop Programming logic using python
3. To develop basic concepts and terminology of python programming
4. To test and execute python programs

Course Outcomes: On completion of the course, student will be able to–

1. Develop logic for problem solving.
2. Determine the methods to create and develop Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.

3. To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc.
4. To write python programs and develop a small application project

Course Type: SECC – II
Course Code: CS-3511
Course Title: Blockchain Technology
Course Objectives:

1. Understand what and why of blockchain technology.
2. Explore major components of blockchain.
3. Learn about Bitcoin, Cryptocurrency and Ethereum.
4. To learn blockchain programming using Python, Flask Web Framework, and HTTP client Postman.

Course Outcomes: On completion of the course, student will be able to–

1. Learn the fundamentals of Blockchain Technology.
2. Learn Blockchain programming
3. Basic knowledge of Smart Contracts and how they function.

Sem – II
Course Type: DSEC - IV
Course Code: CS - 361
Course Title: Operating Systems-II
Course Objectives:

1. To understand the issue of Deadlocks in Process management.
2. To understand the concept of File system management & disk scheduling
3. To study the concept of distributed and mobile operating systems

Course Outcomes: After completion of this course students will be able to understand the concept of

1. Management of deadlocks and File System by operating system
2. Scheduling storage or disk for processes
3. Distributed Operating System and its architecture and the extended features in mobile OS.

Course Type: DSEC - IV
Course Code: CS - 362
Course Title: Software Testing
Course Objectives:

1. To provide the knowledge of software testing techniques

2. To understand how testing methods can be used as an effective tool in quality assurance of software.
3. To provide skills to design test case plan for testing software.
4. To provide knowledge of latest testing methods

Course Outcomes:

1. To understand various software testing methods and strategies.
2. To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software.
3. To design test cases and test plans, review reports of testing for qualitative software.
4. To understand latest testing methods used in the software industries.

Course Type: DSEC – V
Course Code: CS - 363
Course Title: Web Technologies – II
Course Objectives:

1. To Learn different technologies used at client-Side Scripting Language
2. To Learn XML and XML parsers.
3. To One PHP framework for effective design of web application.
4. To Learn Java Script to program the behaviour of web pages.
5. To Learn AJAX to make our application more dynamic.

Course Outcomes: On completion of the course, student will be able to–

1. Build dynamic website.
2. Using MVC based framework easy to design and handling the errors in dynamic website.

Course Type: DSEC – V
Course Code: CS - 364
Course Title: Data Analytics
Course Objectives:

1. Deploy the Data Analytics Lifecycle to address data analytics projects.
2. Develop in depth understanding of the key technologies in data analytics.
3. Apply appropriate analytic techniques and tools to analyze data, create models, and identify insights that can lead to actionable results.

Course Outcomes: On completion of the course, student will be able to–

1. Use appropriate models of analysis, assess the quality of input, and derive insight from results.
2. Analyze data, choose relevant models and algorithms for respective applications

3. Understand different data mining techniques like classification, prediction, clustering and association rule mining
4. Apply modeling and data analysis techniques to the solution of real-world business problems

Course Type: DSEC – VI
Course Code: CS - 365
Course Title: Object Oriented Programming using Java – II
Course Objectives:

1. To learn database programming using Java
2. To study web development concept using Servlet and JSP
3. To develop a game application using multithreading
4. To learn socket programming concept

Course Outcomes: On completion of the course, student will be able to–

1. To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application.
2. Understand and create dynamic web pages, using Servlets and JSP.
3. Work with basics of framework to develop secure web applications.

Course Type: DSEC - VI
Course Code: CS - 366
Course Title: Compiler Construction

Course Objectives:

1. To understand design issues of a lexical analyzer and use of LEX tool.
2. To understand design issues of a parser and use of YACC tool.
3. To understand and design code generation and optimization techniques.

Course Outcomes: On completion of the course, student will be able to–

1. Understand the process of scanning and parsing of source code.
2. Learn the conversion code written in source language to machine language.
3. Understand tools like LEX and YACC.

Course Type: DSEC- IV
Course Code: CS - 367
Course Title: Practical Course based on CS - 361

Course Objectives:

1. To implement Banker’s algorithm for Deadlocks in Process management.
2. To simulate File system management

3. To study and implement various algorithms of disk scheduling

Course Outcomes: After completion of this course students will be able to understand the concept of

1. Management of deadlocks by operating system
2. File System management
3. Disk space management and scheduling for processes

Course Type: DSEC - V
Course Code: CS - 368
Course Title: Practical Course based on CS - 363 and CS – 364

Course Objectives:

1. To Learn different technologies used at client-Side Scripting Language
2. To Learn XML and XML parsers.
3. To One PHP framework for effective design of web application.
4. To Learn Java Script to program the behaviour of web pages.
5. To Learn AJAX to make our application more dynamic. Framework has some utility features that make easy to write API in more efficient way Than Core PHP

Course Outcomes:

1. Build dynamic website.
2. Using MVC based framework easy to design and handling the errors in dynamic website.

Course Type: DSEC - VI
Course Code: CS - 369
Course Title: Practical Course based on CS – 365

Course Objectives:

1. Covers the complete scope of the syllabus.
2. Bringing uniformity in the way course is conducted across different colleges.
3. Continuous assessment of the students.
4. Advanced Java is designed to develop web based, network centric, Enterprise level Applications

Course Outcomes:

1. To Learn database Programming using Java
2. Understand and create dynamic web pages using Servlets and JSP.
3. Work with basics of framework to develop secure web applications

Course Type: SECC - III

Course Code: CS - 3610

Course Title: Software Testing Tools

Course Objectives:

1. To provide the knowledge of software testing methods and strategies.
2. To understand how testing methods can be used as an effective tool in quality assurance of software.
3. To provide skills to design test case plan for testing software.
4. To provide knowledge of latest testing tools

Course Outcomes:

1. To understand various software testing methods and strategies.
2. To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software.
3. To design test cases and test plans, review reports of testing for qualitative software.
4. To understand latest testing tools used in the software industries.

M.Sc. (computer science)

Program Outcome (PO)

1. Provides technology-oriented students with the knowledge and ability to develop creative solutions.
2. Develop skills to learn new technology.
3. Apply computer science theory and software development concepts to construct computing-based solutions.
4. Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, Artificial Intelligence, Mobile applications.

Program Specific Outcome (PSO)

1. Graduate of program should be able to demonstrate the principles and working of the hardware and software aspects of computer system.
2. Graduate of program should be able to use professional software practices strategies and tactics for the development, maintenance and testing of software solutions.
3. Graduate of program should be able to provide effective and efficient real time solutions using practical knowledge in IT domain.
4. To prepare graduates to adapt to technological advancements by engaging in lifelong learning.
5. To prepare graduates to apply their skills in creative innovative computing solutions by employing effective communication, team work, leadership, ethical practices and professionalism.

Course Outcome (CO)
M.Sc. (Computer Science)
SEM-I

Course Code:CSUT111
Course Name: Paradigm of Programming Language
Course Outcomes: -

1. To Understand the basic language implementation techniques
2. Develop ability to learn new languages more quickly
3. To understand the concept of functional programming language
4. Develop ability to learn and write small programs in different programming Languages

Course Code: CSUT112
Course Name: Design and Analysis of Algorithm
Course Outcomes: -

1. To design efficient algorithms using various algorithm designing strategies
2. To analyze the problem and develop the algorithms related to these problems
3. To classify the problem and apply the appropriate design strategy to develop algorithm
4. To design algorithm in context of space and time complexity and apply asymptotic notation

Course Code: CSUT113
Course Name: Database Technologies
Course Outcomes: -

1. To study types of NoSQL databases (Document oriented, key Value pairs, Column-oriented and Graph)
2. To understand detailed architecture, define objects, load data, query data and performance tune NoSQL databases.
3. Able to handle large volumes of structured, semi-structured, and unstructured data using database technologies.

Course Code: CSDT114A
Course Name: Cloud Computing
Course Outcomes: -

1. To understand the principles and paradigm of Cloud Computing
2. Ability to design and deploy Cloud Infrastructure
3. Understand cloud security issues and solutions
4. Ability to understand role of Virtualization Technologies
5. Design & develop backup strategies for cloud data based on features

Course Code: CSDT114B
Course Name: Artificial Intelligence
Course Outcomes: -

1. To analyze and formalize the problem as a state space, graph, design heuristics
2. Ability to represent solutions for various real-life problem domains using logic- based techniques
3. Understand the numerous applications and huge possibilities in the field of AI
4. Ability to express the ideas in AI research and programming language related to emerging technology.

Course Code: CSDT 114C
Course Name: Web Services
Course Outcomes: -

1. To understand the details of web services technologies like WSDL, UDDI, SOAP
2. Ability to learn how to implement and deploy web service client and server
3. Learn how to explore interoperability between different frameworks
4. Understand architectural elements of a RESTful system

Course Code: -CSUP115
Course Name: PPL and Database Technologies Practical
Course Outcomes: -

1. Apply the knowledge of Scala to develop web-based applications
2. Provides knowledge of code optimization
3. To understand concept of interoperability.
4. Students are able to build and maintain the databases handling in real life applications and daily needs.
5. Able to perform hands-on NoSQL database lab assignments that will allow students to use the four NoSQL database types via products such as Cassendra, MongoDB, Neo4J and Riak.

SEM-II
Course Code: CSUT121
Course Name: Advanced Operating System
Course Outcomes: -

1. To design and understand the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems.

2. To evaluate, and compare OS components through instrumentation for performance analysis.
3. To analyze the various device and resource management techniques for timesharing and distributed systems.
4. To develop and analyze simple concurrent programs using transactional memory and message passing, and to understand the trade-offs and implementation decisions.

Course Code: CSUT122
Course Name: Mobile Technologies
Course Outcomes: -

1. To gain knowledge of installing Android Studio and Cross Platform Integrated Development Environment.
2. An ability to use the techniques, skills, and modern technology.
3. To develop the different applications that mobile computing offers to people, employees, and businesses
4. To develop high levels of technical competence in the field of mobile technology

Course Code: CSUT123
Course Name: Software Project Management
Course Outcomes: -

1. To identify the impact of IT projects on the performance of the organizations
2. To understand, manage and develop IT infrastructure in different projects
3. To develop strategies to calculate risk factors involved in IT projects
4. To use project management software to control the design, implementation, closure, and evaluation of IT projects
5. To estimate, plan, calculate, and adjust project variables.
6. Apply project management practices to launch new programs, initiatives, products, services, and events relative to the needs of stakeholders.

Course Code: CSDT124C
Course Name: Soft Computing
Course Outcomes: -

1. To discuss the ideas of fuzzy sets, fuzzy logic and use of heuristics based on human experience
2. To relate with neural networks that can learn from available examples and generalize to form appropriate rules for inference systems
3. To describe with genetic algorithms and other random search procedures useful while seeking global optimum in self-learning situations.

SEM-III

Course Code: CSUT231

Course Name: Software Architecture and Design Patterns

Course Outcomes:

1. Recognize the characteristics of patterns that make it useful to solve real-world problems.
2. Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
3. Able to use specific frameworks as per applications need.
4. Design java application using design pattern techniques.

Course Code: CSUT232

Course Name: Machine Learning

Course Outcomes:

1. Recognize the characteristics of machine learning that make it useful to real-world problems.
2. Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
3. Able to estimate Machine Learning models efficiency using suitable metrics.
4. Design application using machine learning techniques.

Course Code: CSUT233

Course Name: Web Frameworks

Course Outcomes:

1. Students will be ready with the technology which is used widely in Industry as a part of full stack developer.
2. Students will know the powerful way to develop the web application in Python.
3. Students will understand what really the asynchronous programming.
4. Build and deploy robust Django Web App.
5. Integrate with Restful web services.

Course Code: CSDT234A

Course Name: Big Data Analytics

Course Outcomes:

1. Recognize the characteristics, applications of big data that make it useful to real-world problems.
2. Process available data using big data tools Hadoop file system and predict outcomes to solve given problem.
3. Study & Design various case studies using big data tools/commands and analyse it.

Course Code: CSUP235
Course Name: Practical on CSUT231, CSUT232 and CSUT233
Course Outcomes:

1. Able to use specific frameworks as per applications need.
2. Design java application using design pattern techniques.
3. Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
4. Able to estimate Machine Learning models efficiency using suitable metrics.

16. Department of B. Voc. (Retail Management)

Program Outcome (PO)

PO1. To provide adequate basic understanding about Retail Management and specific skill sets among the candidates.

PO2 To train the candidates in communication skills effectively.

PO3 To prepare candidates with special labs in specific courses and with suitable training from Industry

PO4 To give candidates hands on training with projects to make them Industry ready.

PO5 To develop appropriate Vocational employability skills in the candidates so as to
make them competent and get or provide themselves self-employment.

Program Specific Outcome (PSO)

PSO-01 This course enables to known about prevailing, past and future scenario of retailing in India.

PSO-02 This course gets the student acquainted with the knowledge of retail operations performed in a retail organization

PSO-03 This course will helpful to organize the display at the store and to plan visual merchandising

PSO-04 This course provides practical experience and exposure to students.

PSO-05 This course will provide students conceptual understanding of different operating processes and their significance in running retail operations by undergoing research.

COURSE Outcome (CO)

Savitribai Phule Pune University
Credit Based Semester and Grading System
With effect from the Academic Year 2020-2021
(Choice Based Credit System-60:40-Pattern)
(w. e. f- 2020-2021) F. Y. B. Voc. R.M.)
Under the Faculty of Management
(60-Semester-End Exam & 40-Internal Evaluation)

F.Y.B.Voc (R.M)

Semester- I

Subject: 101 Business Communications.

Course Objectives:

1. This course is useful to make the students conversant and fluent in English.
2. This course will create a positive image of self and organization in the Customer Mind.
3. This course will resolve customer concerns and improve customer relationship.

Subject: 102 Basics of Marketing.

Course Objectives:

1. This course will improve the understand and concept of marketing.
2. This course will expose the students to the latest trends in marketing.
3. This course will monitor and solve service problems.
4. This course will promote continuous improvement in service.

Subject: 103 Fundamental of Customer Services.

Course Outcomes:

1. This course will help students to understand the critical need for service orientation in the current business scenario.
2. This course will help customers choose right products.
3. This course will create a positive image of self and organization.
4. This course will resolve customer concerns and improve customer relationship.

Subject: 104 Basic of Retailing.

Course Outcomes:

1. This course enables to known about prevailing, past and future scenario of retailing in India.
2. This course will improve customer relationship.
3. This course will helpful to organize the display at the store and to plan visual merchandising

Subject: 105 Project Work.
Course Outcomes:
1. This course will helpful to learn the practical tactics of retail business.
2. This course will provide on the job experience to students.

Subject: 106 Computer Practical-MS Office-I.
Course Outcomes:
1. This course is useful to enhance the knowledge about the usage of the Computer and IT in retail business.
2. This course will improve the computer skills of students.

Skill Enhancement Course
(w.e.f-2020- 2021)
Title of the course: "A Certificate Course in Skill Development"
(Credit: 15)
Business Correspondent /Business Facilitator (BSC/Q8401)
Or
MOOC (NPTEL/Swayam)

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

F.Y.B.Voc (R.M)
Semester-II
Subject: 2o1 Business Organization and Management
Course Outcomes:
1. This course will provide conceptual knowledge of different forms of Business Organizations to students.
2. This course will enable students' understanding various concepts in Management.
3. Students will be enabled to work effectively in organization with proper understanding of various aspects of Business Organization and Management.

Subject: 2o2 Business Mathematics and Statistics
Course Outcomes:
1. This course will enable students to develop understanding of various mathematical and statistical tools and techniques and its application in practical problems.
2. This course will enable students to perform mathematical, logical calculations required for decision making in day today retail operations.
3. Students will be enabled to monitor and manage store performance

Subject: 2o3 Retail Management
Course Outcomes:

1. This paper will be useful in providing students with a comprehensive understanding of the theoretical and applied aspects of retail management.
2. This course will help students to identify various retail management functions and activities and enable them to understand their importance in satisfying customer need.
3. Students will be enabled to effectively monitor and manage retail store.

Subject: 2o4 Environmental Studies
Course Outcomes:
1. This course will provide a comprehensive knowledge of mechanism of Ecological System.
2. Students will be enabled to understand the various environmental issues.
3. This course will help students to understand the various elements of ecological system and its impact.

Subject: 2o5 COMPUTER PRACTICALS-II (MS- Power point & Internet)
Course Outcomes:
1. This course will enhance the knowledge of students regarding basic elements and use of Power Point and Internet in performing various business activities.
2. This course will help students to acquire proficiency in application such as power point.

Subject: 2o6 Lab in Retail Store Operations-I
Course Outcomes:
1. This course will help students to learn tactics of retail store operations practically.
2. This help students in gaining insights into retail store planning, organizing and managing.
Skill Enhancement Course
(w.e.f-2020- 2021)
(Credit: 15)
On Job Training – Retail Sector

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

S.Y.B.Voc (R.M)

Semester-III
Subject: 3o1: Business Economics
Course Outcomes:
1. This course is to make the student understand how the business organizations work by applying economic principles in their Business Management.
2. This course will provide practical knowledge about business economics to students.

Subject: 3o2: Human Resources Management
Course Outcomes:

1. This course is aimed at providing comprehensive knowledge of Human Resources Management.
2. This course will provide knowledge of all the functions of Human Resources Management.

Subject: 3o3: Supply Chain Management
Course Outcomes:
1. This course will create awareness about the supply chain activities taken in order to deliver the goods.
2. This will helpful to understand tools and techniques of supply chain management in the retail sector.

Subject: 3o4: Consumer Behavior
Course Outcomes:
1. This course will impart conceptual knowledge about consumer behavior and other related issues.
2. This course will useful to understand the retail customer and it is origin of various retail strategies.

Subject: 3o5: Research Paper Writing and Presentation on Retailing Sector I
Course Outcomes:
1. This course will provide students conceptual understanding of different operating processes and their significance in running retail operations by undergoing research into the same.
2. It also helps develop understanding about necessary skills for undertaking research paper writing task and presentation.

Subject: 3o6: Practical Training - retail store Operations- II
Course Outcomes:
1. This course provides practical experience and exposure to students.
2. This course will make students understand various aspects of retail store operation

Skill Enhancement Course
(w.e.f-2020- 2021)
(Credit: 15)
Desk Research in Retailing Sector

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

S.Y.B.Voc (R.M)
Semester-IV

Subject: 4o1: Personality and soft skill Development

Course Outcomes:

1. This course will enable students to understand different aspects of personality development and soft Skills.
2. This course will help students to understand need and importance of personality and soft skill development in workplace and will enable them to work on personality and soft skill development of themselves.
3. This course will enable students to shape themselves appropriately while behaving in social and professional circles

Subject: 402: Store Layout and Design

Course Outcomes:

1. This course will help students in gaining comprehensive knowledge of Store Location, layout and operations.
2. This course will help students to understand crucial elements of store layout and design to maximize sales of goods &services promote continuous improvement.
3. This course will help students to develop the sense of understanding about the importance of effective store layout and design in facilitation consumer purchases and maximizing sales of the store.

Subject: 403: Organizational Behavior

Course Outcomes:

1. This course will provide a foundation for understanding individual, group and organizational behavior, which is essential for better management of an organization
2. This course will help students to understand various behavioral aspects affecting the operations of an organization.

Subject: 404: Elements of Salesmanship

Course Outcomes:

1. This course will impart conceptual knowledge of salesmanship and understanding consumer behavior.
2. To make the students aware about various activities of business, business practice to positive image.

Subject: 405: Research Paper Writing and Presentation (II) on Retail Store Operations

Course Outcomes:

1. This course will provide students conceptual understanding of different operating processes and their significance in running retail operations by undergoing research into the same.
2. This course will help students to develop necessary skills for undertaking research paper writing task and presentation.

Subject: 406: Project Work on Retail Consumer Buying Behavior and Satisfaction
Course Outcomes:
1. This course will provide practical experience and exposure to students.
2. This course will help students to understand various aspects of consumer buying behavior and customer satisfaction and factors affecting the same.
3. This course will help students develop necessary skills for planning and managing for better customer services in a retail store.

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

T.Y.B.Voc (R.M)
Semester-V

Subject: 501 Merchandise buying and planning
Course Objectives
1 This course will make student understand about Merchandise buying and planning.
2 This course enables students develop strategies about Merchandise buying and planning.

Subject: 502 Retail Operations
Course Objectives
1. This course get the student acquainted with the knowledge of retail operations performed in a retail organisation
2. This course will make students understand retail operation

Subject: 503 Entrepreneurship Developments
Course Objectives
1. This course will provide a foundation for Entrepreneurship Development
2. This course will make the students to prepare business plans

Subject: 504 Advertising and Brand Management
Course Objectives
1. This course will make the students understand the importance of advertising and media role in advertising and Brand management.
2. This course enables to develop the various strategies of Advertising and Brand Management.

Subject: 505 Fundamentals of Visual Merchandising (VM)
Course Objectives
1. This course aims at learning basic visual merchandising concepts and theories essential in the store image, its merchandise, and displays.

2 This course will helpful to formulate Strategies of Visual Merchandising (VM).

Subject: 506-SummerProject
Course Objectives
1. This course will provide practical experience and exposure to students.
2. This course will make student understand various aspects of retail sector.
3. It also helps develop necessary skills for planning and managing for better customer services in a retail store.

Skill Enhancement Course
(w.e.f-2020- 2021)
(Credit: 15)
MOOC / Swayam / NPTEL course on Marketing Management
Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

T.Y.B.Voc (R.M)
Semester-VI

Subject: 601 Strategic Management
Course Objectives
1. This course will enable students to understand various perspectives and concept sin Strategic Management.
2. This course will enable students to develop skills for applying these concepts to different Business situations.
3. This course will help students to understand the analysis.

Subject 602: Business Ethics
Course Objectives
1. This course will provide conceptual and comprehensive knowledge of Business Ethics to students.
2. This course will impart knowledge to students of dilemmas of ethical decision making in business.
3. This course will provide basic understanding of ethics management and overview of ethics in different functional areas.
4 This course will develop understanding of the relationship between corporate social responsibility and business ethics among students.

Subject: 603: Research Methodology
Course Objectives
1. This course will provide a foundation for conceptual understanding of essential elements in Research.

2. This course will develop understanding of need & importance of research, conduct of research and application of various essential elements.
3. This course will enable students to understand the basic frame work of Research Methodology

Subject: **604 Customer Relationship Management in Retail**
Course Objectives
1. This course will enable students to learn the basics of Customer Relationship Management.
2. This course will enable students to understand the role and changing face of CRM as IT enabled functions, and application of CRM activities in retail business
3. Student will be enabling to manage Customer Relationships.

Subject: 605 Lab in Retail Selling skill
Course Objectives
1. This course will provide conceptual understanding of various essential elements for maximizing retail sales and their significance in successful retail business operations with effective sales performance.
2. This course will help to develop understanding about necessary skills for undertaking various selling activities and better customer service to the retail store

Subject: 606 Desk Research
Course Objectives
1. This course will provide the foundation for understanding retail strategies and CRM activities of retail store
2. This course will enable students to understand various aspects of retail store strategies and its implementation.
Skill Enhancement Course
(w.e.f-2020- 2021)
(Credit: 15)
MOOC / Swayam / NPTEL course on Marketing Management

Pedagogy: Lectures / Critical Analysis / Assignments / Test/ e-learning/ Visual Presentation

17. Department of B. Voc. (Renewable Energy)

Programme Outcomes (PO's)

1) Be familiar with the methods used in Renewable Energy.
2) Be able to understand the theoretical / mathematical / conceptual development of the subject.
3) Be able to understand the theoretical foundations / basic phenomena / concepts of Renewable Energy thoroughly.
4) Be able to understand the Renewable Energy sources and its applications deeply with the help of practicals.
5) Have a basic understanding of laboratory instruments used by faculty in the department.

Programme Specific Outcome (PSO's)

1) Be able to improve technological aspect.
2) Be familiar with main theoretical concepts and experimental techniques.
3) Be able to develop experimental skills, data analysis, calculations and writing results scientific manner.
4) Be able to tackle the problems with the help of equations / formulae / graphs / mathematical tools.
5) Be able to improve the Energy Conservation and its awareness.
6) Be able to apply the subject knowledge of Renewable Energy in project / research.
7) Be able to continue to work in the field of Energy in general and in particular.
8) Be able to develop Awareness of the use of Solar Energy appliances among students.
9) Be able to develop the enhancing research skills among students.
10) Be familiar with the PV system designing and installation and maintenance of PV system.

Department of B.Voc (Renewable Energy)
Course Outcomes

F.Y.B.Voc

Semester I

1) Introduction to Renewable Energy Sources (RET-1-1)

Students who have completed this course should

1. Have deep introduction with basic concepts of Renewable Energy Sources**.**
2. Understand various aspects of Renewable Energy.
3. Understand various aspects of various forms of energy.
4. Have deep understanding of Conventional and Non-conventional energy sources.
5. Have deep Knowledge of Energy consumption in various sectors and its changing pattern, projected energy demands.

2) Basic Electronics (RET-1-2)

Students who have completed this course should

1. Be familiar with basic properties of electronics. Have deep understanding of Decimal, Binary, Octal and Hexadecimal number systems and their inter conversions, and fractional binary number representations.
2. Have deep understanding of logic gates.
3. Have introduction with arithmetic circuits, combinational circuits, and sequential circuits
4. Be able to solve Rules of binary addition, subtraction, subtraction using 1's and2's Complements, half adder, full adder, and parallel adder.
5. Have deep understanding of logic families, Multivibrator, data converters.

3) Basic Mechanical Engineering: (**RET-1-3)**

Students who have completed this course should

1. Have introduction with Forces in structures.
2. Have deep introduction with Engineering Drawing.
3. Have deep understanding of Fluid mechanics.
4. Have introduction with various types of Fluid, fluid statics, Bernoulli's equation, Conservation of mass, Definition of viscosity.
5. Have deep understanding of. Part drawing, method of Dimensioning; limit fit tolerances, symbols of welded joint, pipe joints, machine parts symbols.

Semester II

1) **Sustainable Development and Energy (RET-2-1)**

Students who have completed this course should

1. Have introduction with sustainable development.
2. Understand various Opportunities in Energy Sustainability, Introduction of Green Buildings, Challenges and opportunities in sustainable practices.
3. Know about Global Energy Scenario, Indian Energy Scenario, Maharashtra Energy Scenario, Energy and Environment.
4. Know various applications of Solar Energy and Its Conversion**.**
5. Have knowledge of Spectral distribution of extraterrestrial radiation, Estimation of extraterrestrial solar radiation.

2) **Applications of Solar Energy (RET-2-2)**

Students who have completed this course should

1. Be familiar with general properties and concepts of Photovoltaic applications of solar energy.
2. Understand Basic working principle, solar cell parameters and characteristics, Efficiency, Efficiency losses, Classifications models.
3. Understand mechanism of various Photovoltaic systems: Stand alone systems, Grid connected systems, Solar power satellite systems.
4. Have deep introduction with Photovoltaic applications: Industrial applications, Social applications, Consumer applications.
5. Have deep introduction with Solar Photovoltaic (SPV) Systems Designing: Load estimation, selection of inverters, battery sizing, and array sizing.

3) **Bio-Energy (RET-2-3)**

Students who have completed this course should

1. Be familiar with general properties of Biogas/Biomethanation System, Generation of biogas, Conversion Principals-Aerobic and Anaerobic bioconversion process.
2. Have deep understanding of Types of Biofuels, Basic Biology, Production Processes, Biofuel applications.
3. Have deep introduction with Origin of Biomass (Photosynthesis process).
4. Be able to determine various types biomass/biomass resources (Energy Crops, Agricultural residues, herbaceous biomass, Woody biomass, Waste materials.

S. Y. B.Voc

Semester III

1) Soft Skill and Communications (RET-3-1)

Students who have completed this course should

1. Be familiar with basic knowledge of Presentation Skills, Interview Technique, and Time management.
2. Be aware of Hazard identification, Risk management/risk control, Risk to health from work activities.
3. Have deep introduction with various aspects of Inter-personal relation, Job limitations, Work ethics, and Professional behavior.
4. Have introduction with various aspects of Problem solving skills, Job role play & Developing Efficient Work Habits, Time work ethics.
5. Make awareness about the overall health and safety management system.

2) Wind Energy (RET-3-2)

Students who have completed this course should

1. Have introduction with origin of wind, fundamentals of fluid flow.
2. Understand various classifications of wind machines: vertical & horizontal axis, upwind and downwind.
3. Know about the performance parameter of wind machines-tip speed ratio, solidity and power coefficient.
4. Know about the various hybrids, environmental impact of wind power, global and Indian scenario.
5. Be able to measure the power coefficient and plotting of Cp-λ characteristics of horizontal axis wind machines.

3) Solar Cell Technology & its applications (RET-3-3)

Students who have completed this course should

1. Have introduction with Production of Silicon.
2. Understand various growths of solar PV industry and Si requirement.
3. Know about Si wafers, Production of metallurgical Grade Si (MGS), Production of electronics Grade Si (EGS).
4. Know about Thin film solar cell Technology.
5. Know about Si wafer-based solar cell Technology.

Semester IV

1) Components of Photovoltaic Systems (RET-4-1)

Students who have completed this course should

1. Have introduction with Components of Grid – connected Solar PV Systems.
2. Understand various Solar Modules, Charge Controllers, Inverters Batteries, Racking, Solar PV array.
3. Know about the PV module, Side- of Pole Mount for solar panel.
4. Know about the Components of Solar Panel.
5. Be familiar with solectrica inverter on a prewired Power panel.

2) Solar Photovoltaic Systems: Design & Integration (RET-4-2)

Students who have completed this course should

1. Have introduction with Solar PV systems Design And integration
2. Understand various Types of Solar PV Systems, Standalone SPV system, Grid connected SPV systems.
3. Know about the Design methodology for SPV systems.
4. Know about the PV systems design and its applications
5. Be familiar with Design methodology of PV systems, Wire Sizing in PV systems.

3) Solar Photovoltaic Systems: Installation & Maintenance (RET-4-3)

Students who have completed this course should

1. Have introduction with Installation, Troubleshooting and safety.
2. Understand various Types of solar PV systems.
3. Know about the Maintenance of PV systems.
4. Know about the installation of Solar PV systems, Installation and trouble shooting of solar PV Power Plants.
5. Be familiar with the PV system components.

T.Y.B.Voc
Semester V

1) Roof Top & Grid Connected PV System (RET-5-1)

Students who have completed this course should

1. Have introduction with Roof Top Solar PV Systems.
2. Understand various components and design of solar rooftop business models.
3. Know about the Grid Connectivity – Configuration.
4. Know about the Components of Grid Connected PV Systems.

5. Be familiar with Off-Grid and On-Grid connectivity, Grid connected photovoltaic system.

2) Net Metering Concept & Government Policies (RET-5-2)

Students who have completed this course should

1. Have introduction with Concept of net metering.
2. Understand various State and National level net metering policies.
3. Know about the net energy metering, virtual net metering.
4. Know about the General Guidelines of Net Metering, Various Approvals, and Application procedure for net metering.
5. Be familiar with the concept of solar rooftop net metering.

3) Introduction to PV Software's (RET-5-3)

Students who have completed this course should

1. Have introduction with Solar PV Software's.
2. Understand various software's which are useful to design solar photovoltaic plants.
3. Know about the detail study of PVSYST and PVSOL software.
4. Know about the HELIOSCOPE, PV F CHART, INSEL, POLYSUN, SOLARIUS PV, SKELION,
5. Be familiar with PV-Design-PRO (GE), PV Designer Sol metric, HELIOS 3D.

Semester VI

1) Operation and Maintenance (RET-6-1)

Students who have completed this course should

1. Have introduction with Operation and Maintenance (O&M) of the plants.
2. Understand various types of maintenance.
3. Know about the O&M focus areas.
4. Know about the Preventive Maintenance (PM), Corrective Maintenance (CM) or breakdown Maintenance (BM).
5. Be familiar with Module, Electrical sub-systems, Civil and Structural sub-systems.

2) Site Feasibility Report (RET-6-2)

Students who have completed this course should

1. Have introduction with solar PV power plant.

2. Understand various parameters of solar resource data like GHI, DNI,Temperature and Wind , Perform shading analysis.
3. Know about the Site Visit.
4. Know about the client requirement.
5. Know about the how to prepare Site Feasibility Study Report.

3) Entrepreneurship Skills (RET-6-3)

Students who have completed this course should

1. Have introduction with Government/corporate policies and guidelines on solar PV & solar rooftop.
2. Understand various Scopes for Starting a new venture.
3. Know about the use of MS word and MS excel for preparing a proposal.
4. Know about the developing entrepreneurship skills for starting a new business and managing it.
5. Be familiar with the importance of Entrepreneurship.