

P. D. E. A's
Prof. Ramkrishna More Arts, Commerce and Science
College Akurdi Pune-411044

Affiliated to



Savitribai Phule Pune University [SPPU]



B. Voc. Software Development
(Under Faculty of Science and Technology, Savitribai Phule Pune University)

Choice Based Credit System [CBCS]
Under
Autonomy and NEP-2020

From Academic Year
2024-2025

Syllabus
First Year Graduate (F. Y. B. Voc.)
Software Development

Board of Studies Software Development

Rules and Regulations

1. National Credit Framework (NCrF): For creditisation and integration of all higher education qualifications leading to a certificate/ diploma/ degree with multiple entry and exit options, college will refer to National Credit Framework (NCrF) which encompasses the qualification frameworks for higher education, vocational and skill education and school education, namely National Higher Education Qualification Framework (NHEQF), National Skills Qualification Framework (NSQF) and National School Education Qualification Framework (NSEQF) respectively.

2. Structure of Four years multidisciplinary UG Programme and Five Years Integrated Multidisciplinary Master's Degree Programmes with Multiple Entry and Exit Options at Different Levels:

- (i) Students will have the flexibility to enter four years multidisciplinary Under Graduate Programme in odd semesters and exit a programme after the successful completion of even semesters as per their future career needs.
- (ii) Students will get a Certificate after a One year programme (minimum 40 Credits), a Diploma after two years (minimum 80 Credits), a Bachelor's degree after three years (minimum 120 Credits), and a Bachelor's degree with Research or Honours after Four years (minimum 160 Credits).

3. Qualification Type and Credit Requirements of Four Years Multidisciplinary Degree Programme with Multiple Entry and Exit Options

- (i) Details of qualifications, minimum credit requirements, exit credit courses, year and semester are as under:

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
4.5	UG Certificate	40	44	2	1
5.0	UG Diploma	80	88	4	2
5.5	Three Years Bachelor's degree	120	132	6	3
6.0	Bachelor's degree Honour's with Major	160	176	8	4
	Bachelor's degree Honour's with Major	160	176	8	4
7.0	Master's Degree	200	220	10	5
8.0	Ph. D.	----	-----	-----	----

- (ii) An exit 6-credit bridge course(s) lasting two months, including at least 6-credit job specific internship/apprenticeship that will help the graduates acquire job-ready competencies required to enter the workforce will be an additional requirement for the award of the undergraduate Certificate/ Diploma/ three year Bachelor's Degree.
- (iii) On exit, the students will have the option to re-enter the programme in the college, or in a different higher education institution. Re-entry at various levels for lateral entrants in academic programmes should be based on the earned and valid credits as deposited and accumulated in the Academic Bank of Credits (ABC) through Registered Higher Education Institutions (RHEI) and proficiency test records.
- (iv) Eligibility for admission to the fourth year of four-year **Honours with Research Degree Programmes** as per UGC guidelines: Minimum CGPA of 7.5 or minimum 75% at three-year degree.

- (v) PG curriculum, as illustrated below, have flexibility a) One-year Post-Graduate Diploma (PGD), b) Two year Post-graduate Programme and c) 5 Years Master's degree programmes with multiple Entry and Exit options at different levels.

(a) Post-Graduate Diploma (PGD): Programme duration- One year (2 semesters) after any bachelor's degree, min. 40 credits

(i) UGC: 1-Year (2 semesters) Post-Graduate Diploma (PGD) after 3-years Bachelor's degree: Level 6.0

(ii) UGC: 1-Year (2 semesters) PGD after 4 years Bachelor's degree (Honors/ Research): Level 6.5

(b) Master's Degree:

(i) UGC: 2-Years (four semesters) Master's Degree after obtaining a 3-years Bachelor's degree, Minimum 40 credits/year, second year devoted entirely to research, PG – 2nd year: Level 6.5

OR

(i) 1-Year (two semesters) Master's Degree after obtaining a 4-year Bachelor's degree (Honours/Research): Minimum 40 credits: Level 6.5

(c) Level 8 represents Ph. D. Research Degree.

(d) A 5-year Integrated Bachelor's and Master's programme shall have a minimum of 220 credits.

(e) Master's and doctoral programmes, while providing rigorous research-based specialization, should also provide opportunities for multidisciplinary work, in academia, government, research institutions, and industry.

4. Lateral Entry/ Re-entry at higher Levels after exit from lower levels of four years multidisciplinary UG degree programme:

(i) The credit points earned and accumulated shall be used to determine the eligibility for taking admission to various programs at multiple levels, subject to fulfilment of the broad principles laid down under NCER. Students who leave with a Certification, Diploma, or a Basic Bachelor's Degree will be eligible to re-enter the programme at the exit level to complete or progress to the next level through lateral entry mode. Depending upon the academic and physical facilities available, the State Universities/ Autonomous Colleges (Higher Education Institutions or HEI) may earmark specific seats/ intake for lateral entry into the second year/ third year/ fourth year of a four years multidisciplinary UG degree programme as approved by Professional Standard Setting Bodies (PSSB/Govt. of Maharashtra/ statutory council of affiliating University plus any consequential vacancies caused by exits to an ongoing programme (four-year Degree Programme and Integrated Master's or second year Master's). Lateral entry or Re-entry is open to those students if he/she has either –

(a) successfully completed the first year/second year/third year of the particular four years multidisciplinary degree programme in any ABC registered HEI with valid credits in ABC and re-entering into the second year/third year/fourth year, respectively of the same four years degree programme of any ABC registered HEI, within stipulated/ permissible period of years as decided by Statutory Councils of that HEI

OR

(b) Already successfully completed a multidisciplinary four-year first-degree programme and is desirous of and academically capable of pursuing another multidisciplinary four years first-degree programme in an allied subject.

(ii) A student will be allowed to enter/re-enter only at the odd semester. Re-entry at various levels for lateral entrants in academic programmes should be based on the earned and valid credits as deposited and accumulated in Academic Bank of Credits (ABC) through Registered

Higher Education Institutions (RHEI) and proficiency test records. However, in terms of the admission eligibility requirements, the student shall belong to the same faculty/ discipline

in terms of Major Subject i.e., the Major subject of his earlier Programme and the Major subject of the new Programme for which he is seeking admission must be from the same

faculty/discipline. Reservation for lateral entry will be executed as per the Government of Maharashtra norms.

5. Distribution of Credits across Multidisciplinary Four Years Degree Programme:

- (i) Four-year multidisciplinary degree programme with Honours/ Specialization Degree will have Internship and Core /Major Courses with a minimum of 22 credits per sem. in the Fourth Year.
- (ii) Four-year multidisciplinary degree programme with Research will have Research Projects, Seminars, Dissertations and Internships with a minimum of 22 credits per Sem. in the Fourth Year.
- (iii) Students shall select a 'Major or Core Subject/ Discipline' and a '**Minor Subject/Discipline**' from the lists of various **Subject Combinations and Options provided the Colleges**. In general, for the four years multidisciplinary bachelor's degree programme, the distribution of credits will be as follows:
 - (a) Disciplinary/interdisciplinary Major/ Core Subject (minimum of 68 credits)- Mandatory and Elective Courses
 - (b) Disciplinary/interdisciplinary Minor Subject (maximum of 22 credits)
 - (c) Skill based/Vocational studies corresponding to the Major/ Core Subject (8 credits)
 - (d) Field projects/internship/apprenticeship/community engagement and service corresponding to the Major/ Core Subject (14-22 credits) with a maximum of six credits per Semester
 - (e) Generic/ Open Electives through Baskets of Elective Courses (12 credits),
 - (f) Ability Enhancement Courses including Languages, Literature and Environmental Studies (12 credits),
 - (g) In-built modules on the Indian Knowledge System (IKS) in Major/ Core Subject at Level 4.5 – 2 credits
 - (h) Value-based Education, Life Skills and Professional Ethics: Co-curricular Courses such as Sports and Culture, NSS/NCC and Fine/ Applied/Visual Arts (8 credits).

Student can earn some credits (SEC/VSC/GE/OE) in the form of online from-

- (i) The National Skills Qualifications Framework (NSQF) organizes qualifications for Vocational and Skill Courses in a series of 8 levels based on professional knowledge, professional skills, core skills and responsibilities, in the increasing order of complexity and competency.
- (ii) University Grants Commission (Credit Framework For Online Learning Courses through Study Webs of Active-Learning for Young Aspiring Minds) Regulations, 2021, **permits up to 40 per cent of the total courses being offered in a particular programme in a semester through the Online Learning Courses offered through the Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) platform.**

6. Examination and Assessment Process:

- (i) The basic principle of the credit framework is that credits are a function of the successful completion of a program of study/ vocational education/ training and assessment. No credit can be earned by the student unless the student is assessed for the achievement of the desired competencies and outcome of a program.
- (ii) Exit options are provided with certification, diploma and basic Bachelor's degrees to the students at the end of the second, fourth and sixth semesters of a four years multidisciplinary degree programme. Students will receive a Bachelor's degree with Honours/ Research on successfully completing of all eight semesters of the UG Program either at a stretch or with opted exits and re-entries.

- (iii) For the smooth success of four-year multidisciplinary degree programme with multiple entry and exit systems, the examination mode will be based on the combination of innovative trends in formative (informal and formal tests administered during the learning process) and summative (evaluation of students learning at the end of an instructional unit) examination modes. This is in line with the UGC Report on 'Evaluation Reforms in Higher Educational Institutions (2019)'.

(iv) Evaluation of each students in each course will be done as follows

- a. Each theory or practical course will be of 2 credits = 50 marks
- b. Internal evaluation 30% weightage (15 marks)
- c. External evaluation 70% weightage (35 marks)
- d. Students should secure 40% marks in each type of evaluation for successful completion of a course (student should secure at least 6 marks in internal and 14 marks in external evaluation).

(v) Evaluation Pattern.

a. Internal evaluation - Two written test, each of 20 marks will be conducted i. e. two tests on two modules. 1st assignment after completing 6 weeks of teaching and 2nd on completion of 13th week of teaching. 5 marks out of 15 will be assigned from these written tests. Remaining 10 marks will be assigned from other types of evaluation such as seminars, orals, poster presentation, open book challenging tests, surprise test, objective test etc. Examination (Internal and external) will conducted so that CO, PO, PSO can be evaluated.

b. External Evaluation - External evaluation will be done at the end of each semester.

- i. For theory, 35 marks written examination will be conducted and time of examination will be 2-hours.
- ii. For practical, 35 marks practical examination will be conducted and time of examination will be 4-hours.
- iii. For project / field project, 35 marks evaluation will done on the basis of viva-voce and examination of thesis by the examiners.
- iv. For OJT 35 marks evaluation will be done on the basis of report of industrial mentor / supervisor / industry and viva-voce. However, student has to produce and submit OJT certificate from competent authority of industry.

7. Attendance: The student must have at least 70% attendance, to appear any type of examination.

8. Declaration of Results:

- (i) Declaration of result is based on the Semester Grade Point Average (SGPA) earned towards the end of each semester or the Cumulative Grade Point Average (CGPA) earned at the completion of all eight semesters of the programme and the corresponding overall alpha-sign or letter grades as given in Table 2. If some candidates exit at the completion of the first, second or third year of the four years Undergraduate Programmes, with Certificate, Diploma or Basic Degree, respectively, then the results of successful candidates at the end of the second, fourth or sixth semesters shall also be classified on the basis of the CGPA obtained in the two, four, six or eight semesters, respectively. Successful candidates at the end of the tenth semester of the integrated Master's Degree Programmes shall also be classified on the basis of CGPA obtained in the ten semesters of the Programmes. Likewise, the successful candidates of one year or two semesters Master's Degree Programme are also classified on the basis of the CGPA of two semesters of the Master's Degree Programme.

Table-2: Grades on degree certificate/mark sheet will be assigned to the students as per the following table

Semester GPA/ Program CGPA Semester/Program	% of Marks	Alpha-Sign / Letter Grade Result
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9.00-10.00	90-100	O (outstanding)
8.00 - <9.00	80.00 – <90.00	A+ (Excellent)
7.00 - <8.00	70.00-<80.00	A (Very Good)
6.00 - <7.00	60.00-<70.00	B+ (Good)
5.50 - <6.00	55.00-<60.00	B (Above Average)
5.00 - <5.50	50.00-<55.00	C (Average)
4.00 - <5.00	40.00-<50.00	P (Pass)
Below 4.00	< 40	F (Fail)
	-----	Absent

- (ii) A student obtaining Grade F shall be considered failed and will be required to reappear in the examination. For non-credit courses ‘Satisfactory’ or ‘Unsatisfactory’ shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

9. Award of Major and Minor Degree:

- (i) A student pursuing four-year multidisciplinary UG programme will be awarded an appropriate Honours/ Research degree in Major/ Core Subject on completion of VIII Semester with the minimum of 176 credits if he secures in that Subject at least 50% of the total credits for that programme. He shall thus study the specific number of Mandatory Core Courses, Core Electives, Vocational and Skill Courses and Field projects/ Internships connected to Core Subjects in eight semesters so as to cover at least 50% of the total credits.
- (ii) In case of Research Degree, a student shall pursue research project and write dissertation in that Major in the VII and VIII semesters.

On the basis of above rules and regulations under NEP-2020 following course frame work is adopted by the Prof. Ramkrishna More Arts, Commerce and Science College, Akurdi, Pune-411044 for the completing of four years honours degree in Major and Minor subjects.

10. Distribution of Credits across Four Years Degree Programmes:

In general, for the four years’ bachelor’s degree programme, the distribution of credits will be as follows:

(a) Major (Core) Subject comprising Mandatory and Elective Courses:

- Minimum 50% of total credits corresponding to Three/Four - year UG Degree- Mandatory Courses offered in all Four years;
- 2 credit course on Major Specific IKS shall be included under Major;
- Elective courses of Major will be offered in the third and/or final year.
- Vocational Skill Courses, Internship/ Apprenticeship, Field Projects, Research Projects connected to Major first to fourth year.

(b) Minor Subject: 18-20 Credits

- The Minor subjects may be from the different disciplines of the same faculty of DSC Major (Core) or they can be from different faculty altogether.
- The credits of Minor subjects shall be completed in the first three years of UG Programme.

(c) Generic/ Open Elective Courses (OE): 10-12 credits

- It is to be offered in I and/or II year
- Faculty-wise baskets of OE shall be prepared by University/ Autonomous Colleges.
- OE is to be chosen compulsorily from faculty other than that of the Major.

(d) Vocational and Skill Enhancement Courses (VSEC): 14-16 credits

Vocational Skill Courses (VSC): 8-10 credits, including Hands on Training corresponding to the Major and/or Minor Subject:

- To be offered in first to three years;
- Wherever applicable vocational courses will include skills based on advanced laboratory practicals of Major

Skill Enhancement Courses (SEC): 06 credits

- i. To be offered in I and II year;
- ii. To be selected from the basket of Skill Courses approved by University/ Autonomous Colleges

(e) Ability Enhancement Courses (AEC), Indian Knowledge System (IKS) and Value Education Courses (VEC): 14 Credits

1. AEC: 08 credits

- i. To be offered in I and II year
- ii. English: 04 Credits
- iii. Modern Indian Language: 04 credits

iv. To be offered from the Basket approved by the College;

The focus for both languages should be on linguistic and communication skills.

o IKS: 2 Credits

- i. To be offered in I Year
- ii. Courses on IKS to be selected from the basket of IKS courses approved by the Colleges

o VEC: 04 Credits

- i. To be offered in I year
- ii. Value Education Courses (VEC) Environmental Science Education (Compulsory), Understanding India, and Digital and Technological Solutions.

(f) Field Projects/ Internship/ Apprenticeship/ Community Engagement and Service corresponding to the Major (Core) Subject, Co-curricular Courses (CC) and Research Project

o Internship/Apprenticeship corresponding to the Major (Core) Subject: 8 Credits

o Field Projects/Community Engagement and Service corresponding to the Major (Core) Subject: minimum 4-6 credits

To be offered in II, and III years of UG Degree Programmes.

o Co-curricular Courses (CC) such as Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/ Visual/ Performing Arts: 8 credits. To be offered in I and/or II year

o Research Projects: 12 credits

To be offered in the final year for 4-year Honours with Research UG Degree

The UGC Regulations, 2021 permit up to 40% of the total courses being offered in a particular programme in a semester through the Online Learning Courses offered through the SWAYAM platform and/or other State Level Common Platforms which can be developed in due course with the participation of different Universities/ HEIs.

Abbreviations: Generic/ Open Electives: **GE/OE**; Vocational Skill and Skill Enhancement Courses: **VSEC**; Vocational Skill Courses: **VSC**; Skill Enhancement Courses: **SEC**; Ability Enhancement Courses: **AEC**; Indian Knowledge System: **IKS**; Value Education Courses: **VEC**; **OJT**: On Job Training; Internship/ Apprenticeship; Field projects: **FP**; Community engagement and service: **CEP**; Co-curricular Courses: **CC**; Research Methodology-**RM**; Research Project: **RP** Note: The Credit Distribution Table given above is illustrative only. The Universities/ Autonomous Colleges may suitably modify within the broader framework of credit distribution across six verticals.

11. Definitions:

i. One semester = 15 weeks

ii. 1-credit theory = 15 hours i.e. for 1 credit, 1 hour per week teaching is to be performed.

15 hours of 1-credit are splinted as 12 hours actual teaching + 3 hours Tutorial (Numerical problem solving sessions, revision on difficult topics, dialog on student's difficulties, and internal evaluation)

iii. 1-credit practical = 30 hours. Thus, 1 credit practical = 2 contact hours in laboratory per week. 30 hours splinted as 24 hours actual table work and 6 hours for journal competition, oral on each practical and other internal evaluation.

iv. Each theory course of any type (major, minor, VSC, VEC, OE/GE, VEC, SEC, CC, etc.) **is of 2 credits.**

v. Theory per semester: Each theory course is of 2 credits. Thus, for each theory course contact hours = 24 teaching + 6 tutorials

vi. Each practical course is of 2 credits = 60 hours per semester

a. Minimum 12 laboratory sessions will be conducted in one semester.

b. Each laboratory sessions will be of 4 hour.

Abbreviations:

VSC- Vocational Skill Course; SEC- Skill Enhancement Course; IKS- Indian knowledge System
FP- Field Project; CEP- Community Engagement Project; OJT- On job Training
AEC- Ability Enhancement Courses; VEC- Value Education Course; CC- Curricadar Coures
GE/OE- Generic or Open elective courses; RP - Research Project RM- Research Methodology

T-Theory P -Practical

1. A student can select two subject from the same faculty in first year. At second year from Subject-1& 2 student will select any one subject as major and one subject as minor. student cannot select Major and minor subjects other than these two subjects taken at first year.
2. **VSC, IKS-2, OJT, FP, CEP, RP, PM should be related to Major subject**
3. **OE/GE** - Must be selected form basket approved by college and selected from the faculty other than faculty of Major subject.
4. **SEC should be selected from the basket of same faculty approved by the college.**
5. Each theory course may be of 2 or 4 credit; each practical course should be of 2 credit only.
6. For those subject's practical cannot be conducted; they have to convert practical credits into theory credits. The decision should be taken BOS of respective subject.
7. This credit framework is applicable to all faculties in the college. The courses which are under AICET, they must take approval to this framework from AICET or respective body.

NEP Coordinator IQAC Coordinator Deans Vice Principal Principal

1. Arts Faculty: _____
2. Commerce Faculty: _____
3. Science Faculty: _____

P.D.E.A's. Prof. Ramkrishna More Arts, Commerce and Science College Akurdi, Pune-411044
Revised Credit Framework / Structure for NEP-2020; CBCS Pattern-2024 with two Major at FY
To be Implemented from Academic Year 2024-25

[illegible]

**Courses Offered by B.Voc. (Software Development) Department at
First year of Graduation**

Subject-1 (Major) Courses			
Semester	Course code	Generic Name	Title of the paper
I	SDMAT-111	B. Voc. (Software Development) Theory Paper-1	PHP Programming
	SDMAT-112	B. Voc. (Software Development) Theory Paper-2	Database Management System
	SDMAP-113	B. Voc. (Software Development) Practical Paper-1	PHP Programming Lab
II	SDMAT-121	B. Voc. (Software Development) Theory Paper-3	Mastering in JavaScript
	SDMAT-122	B. Voc. (Software Development) Theory Paper-4	Object Oriented Software Engineering
	SDMAP-123	B. Voc. (Software Development) Practical Paper-2	Mastering in JavaScript Lab
Subject-2 (Minor) Courses			
I	ESMAT-111	Minor B. Voc. (Software Development) Theory Paper-1	WebCraft
	ESMAT -112	Minor B. Voc. (Software Development) Theory Paper-2	CircuitC
	ESMAP -113	Minor B. Voc. (Software Development) Practical Paper-1	CircuitC Lab
II	ESMAT -121	Minor B. Voc. (Software Development) Theory Paper-3	Computer networks
	ESMAT -122	Minor B. Voc. (Software Development) Theory Paper-4	Data CircuitC
	ESMAP -123	Minor B. Voc. (Software Development) Practical Paper-2	Data CircuitC Lab
Indian Knowledge System (IKS)			
I	GIKST-111	Indian knowledge system Theory-I	Generic IKS
Skill Enhancement Course (SEC)			
I	SDSEP-111	Skill Enhancement Course Practical-1	Static Web Design
II	SDSEP-121	Skill Enhancement Course Practical-2	Dynamic Web Design: PHP
Value Education Course (VEC)			
I	VEAET-111	Value Education B. Voc. (Software Development) theory-I	Environmental Awareness
II	VEAET-121	Value Education B. Voc. (Software Development) theory-II	Democracy and Indian Constitution
Ability Enhancement Course (AEC)			
I	HIAET-111	Ability Enhancement Course Paper-I-A	Hindi-I
	MAAET-111	Ability Enhancement Course Paper-I-B	Marathi-I

II	HIAET-121	Ability Enhancement Course Paper-II-A	Hindi-II
	MAAET-121	Ability Enhancement B.Voc. (Software Development) Paper-II-B	Marathi-II
Curricular Courses (CC)			
II	CCPEP-121	Co-Curricular Courses-I	Physical Education and Sports
Generic Elective / Open Elective (GE/OE)			
I		GE/OE	Select from college basket
II		GE/OE	Select from college basket

Program Outcomes: B. Voc (Software Development)

- PO-1:** Ability of judicious mix of skills relating to a profession and appropriate content of General Education.
- PO-2:** Ability about adequate knowledge and skills for employment and entrepreneurship.
- PO-3:** Career opportunities in programming, web development and software development.
- PO-4:** Ability to write computer code in a logical, structured, and organized manner.
- PO-5:** Ability to learn Communication Skills and sharpen business acumen to help succeed in today's complex workplaces.
- PO-6:** Enhance employability of the graduates and meet industry requirements.
- PO-7:** Ability to establish themselves as effective professionals by solving real problems through use of computer knowledge
- PO-8:** Ability to develop professional skill that prepares them for immediate employment and for lifelong learning in advanced area of software and related fields.
- PO-9:** Ability to deliver a quality product for business success
- PO-10:** Ability to communicate effectively with wide range of audiences.
- PO-11:** Ability to Design, implement and evaluate a computer base system, process, component or program to meet desired needs.

PROGRAM SPECIFIC OUTCOMES:

- PSO1:** Ability to apply knowledge to work in a team as well as to lead team.
- PSO2:** Ability to write effective project reports in the context of changing technologies.
- PSO3:** An Ability to analyze the local and global impact on computing, on individuals, organization and society
- PSO4:** An ability to innovate new ideas and solution to existing problems.

Semester-I, Subject-I, Theory Paper-1

SDMAT-111: PHP Programming

[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	PHP Web Development Fundamentals	6 L
	Using Array	6 L
II	Reusing code and Writing functions	6 L
	PHP and Database Integration using MySQL	6 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: PHP Web Development Fundamentals

[6 L]

Basics of PHP syntax and variables, Data types and operators, Control structures (if-else, loops), Working with HTML forms and handling user input, Understanding HTTP and GET/POST requests,

Ref-1: Chapter-1, pp 1 to 55

Chapter-2: Using Array

[6 L]

What is an Array? Numerically Indexed Arrays, Arrays with Different Indices, Sorting Arrays, Performing Other Array Manipulations,

Ref-1: Chapter-3, pp 81-105

Module-2

[12L+3T]

Chapter-3: Reusing Code and Writing Functions

[6 L]

The Advantages of Reusing Code, Using require() and include(), Using Functions in PHP, Defining Your Own Functions, Examining Basic Function Structure, Using Parameters, Understanding Scope, Passing by Reference Versus Passing by Value, Using the return Keyword, Implementing Recursion,

Ref-1: Chapter-5, pp 133-158

Chapter-4: PHP and Database Integration using MySQL

[6L]

Connecting to a database server, Executing SQL queries and retrieving results, Working with result sets and data manipulation, Handling errors and exceptions

Ref-1: Chapter-8-11, pp 207-286

Reference-1: “PHP and MySQL Web Development” by Luke Welling and Laura Thomson, Publisher- Addison-Wesley Professional.

Course Outcome

At the end of course, student will able -

- CO 1 :** Student will be able to describe server-side programming works on the web.
- CO 2 :** Students will be able to discuss how to receive and process form submission data.
- CO 3 :** Students will be to Perform PHP scripts to handle HTML forms.
- CO 4 :** Students will be to Use of use PHP built-in functions and custom functions
- CO 5:** Students will be to analyze database in phpMyAdmin.
- CO 6 :** Students will be to Perform read and process data in a MySQL database
- CO 7 :** Students will be to Evaluate POST and GET in form submission
- CO 8 :** Students will be to Design and implement web pages.

Semester-I, Subject-I, Theory Paper-2
SDMAT-112: Database Management System
[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Introduction to Databases	3 L
	Relational Database Design	3 L
	SQL Fundamentals	3 L
	Advanced SQL Queries	3 L
II	Introduction to Non-Relational Databases	3 L
	Querying Non-Relational Databases	3 L
	Database Integration in Web Applications	3 L
	Database Security and Authentication	3 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction to Databases

[3 L]

Overview of databases and their role in web development, Understanding relational and non-relational databases, Introduction to SQL and NoSQL concepts

Ref-1: chapter 1 pp 01 to 11

Chapter-2: Relational Database Design

[3 L]

Entity-relationship modeling and normalization, creating tables and defining relationships, Implementing primary keys, foreign keys, and constraints

Ref-2: chapter 2 pp 26 to 44

Chapter-3: SQL Fundamentals

[3 L]

Basic SQL queries (SELECT, INSERT, UPDATE, DELETE), Filtering and sorting data, Joins and subqueries

Ref-2: chapter 5 pp 121 to 136

Chapter-4: Advanced SQL Queries

[3 L]

Aggregation functions and GROUP BY clause, Modifying data with transactions, Stored procedures and triggers

Ref-2: chapter 5 pp 138 to 150

Module-2

[12L+3T]

Chapter-5: Introduction to Non-Relational Databases

[3 L]

Overview of NoSQL databases and their use cases, Document-oriented databases (e.g., MongoDB), Key-value stores (e.g., Redis)

Ref-3: chapter 2 pp 2 to 15

Chapter-6: Querying Non-Relational Databases

[3 L]

CRUD operations in MongoDB, working with documents and collections, Indexing and optimizing queries

Ref-4: chapter 9 pp 193 to 241

Chapter-7: Database Integration in Web Applications

[3 L]

Connecting web applications with relational databases, Executing SQL queries from application code, Using database drivers and ORMs (e.g., Sequelize, SQLAlchemy)

Ref-5: chapter 8 pp 374 to 377

Chapter-8: Database Security and Authentication

[3 L]

Database user management and access control, Protecting against SQL injection attacks, Securing database connections (e.g., SSL/TLS)

Ref-5: chapter 8 pp 383 to 387

Reference-1: “Database System and Concepts” by A Silberschatz, H Korth, S Sudarshan, Publisher- McGraw-Hill - Fifth Edition.

Course Outcome

At the end of course, student will able -

CO 1: Apply entity-relationship modeling and normalization techniques to design relational databases document

CO 2: Implement primary keys, foreign keys, and constraints to ensure data integrity in relational databases.

CO 3: Analyze and perform joins and subqueries to retrieve data from multiple database tables.

CO 4: Perform CRUD operations in MongoDB, including creating, reading, updating, and deleting documents.

CO 5: Connect web applications with relational databases, executing SQL queries from application code.

CO 6: Implement measures to protect against SQL injection attacks and secure database connections using SSL/TLS

Semester-I, Subject-I, Practical Paper-1

SDMAP-113: PHP Programming Lab

[Practical, 2 Credits Paper, 60 Lectures]

1. Assignment to demonstrate use of data types, simple operators (expressions), decision making statements (if and if-else, nested structures), simple loops, nested loops
2. Assignment to demonstrate menu driven programs of string handling functions (built-in & user defined functions)
3. Assignment to demonstrate functions (include require construct)
4. Assignment to demonstrate String Operations regular expressions(replace, split)
5. Assignment to demonstrate use of arrays (1-d arrays) and functions
6. Assignment to demonstrate use of multidimensional array(2-d arrays) and functions
7. Assignment to demonstrate menu driven program to perform the operations on an associative array (array_flip, shuffle, unset, keys, values)
8. Assignment to demonstrate classes, objects & derive classes
9. Assignment to demonstrate interfaces
10. Assignment to demonstrate menu driven program to perform various file operations. (size of file, Last Access, changed, modified time of file, details about owner and user of File, type of file, delete a file, copy a file, traverse a directory in hierarchy, Remove a directory)
11. Assignment to demonstrate directory related functions (opendir, readdir, rewinddir)
12. Assignment to demonstrate session tracking using cookies
13. Assignment to demonstrate database connection with PHP application.

Course Outcome

At the end of course, student will able -

CO 1: Student will be able to implement and apply data types, operators, decision-making statements, and loops to solve programming problems.

CO 2: Student will be able to perform advanced string operations using regular expressions, such as search, replace, and split..

CO 3: Student will be able to implement and manage interfaces to ensure that classes adhere to specific method contracts.

CO 4: Student will be able to use directory functions to open, read, and manage directories in a PHP environment.

CO 5: Student will be able to implement session tracking mechanisms using cookies to manage user sessions in web applications.

CO 6: Student will be able to connect to databases from PHP applications and perform basic database operations to interact with stored data.

Semester-II, Subject-I, Theory Paper-3

SDMAT-121: Mastering in JavaScript

[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Introduction to JavaScript	2 L
	Working with Functions	2 L
	Objects and Object-Oriented Programming (OOP)	2 L
	Arrays and Array Manipulation	3 L
	DOM Manipulation and Event Handling	3 L
II	ECMAScript and Modern JavaScript Features	4 L
	The jQuery Library	4 L
	HTML5 APIs	4 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction to JavaScript

[2 L]

Overview of JavaScript and its role in web development, JavaScript syntax, variables, and data types, Control flow and conditional statements, Loops and iteration in JavaScript,

Ref-1: Chapters 1-5. pp 1-112, **Ref-2:** Chapters 1-6. pp 7-93.

Chapter-2: Working with Functions

[2 L]

Function declarations and expressions, Parameters and arguments, Return statements, Function scopes and closures, Arrow functions,

Ref-1: Chapter-8, pp 163-191, Chapter-9, pp 200-246. **Ref-2:** Chapters-7. pp 97-115.

Chapter-3: Objects and Object-Oriented Programming (OOP)

[2 L]

Introduction to objects, Object properties and methods, Constructors and prototypes, Inheritance and prototype chain,

Ref-1: Chapter-6, pp 115-140, **Ref-2** Chapter-8, pp 117-130.

Chapter-4: Arrays and Array Manipulation

[3 L]

Declaring and initializing arrays, Array methods (push, pop, shift, unshift, etc.), Iterating through arrays (for each, map, filter, reduce), Multidimensional arrays,

Ref-1: Chapter-7, pp 141-160 **Ref-2:** Chapter-7, pp 55-66.

Chapter-5: DOM Manipulation and Event Handling

[3 L]

Introduction to the Document Object Model (DOM), Selecting and manipulating DOM elements, Event listeners and handlers, Modifying the DOM structure and content dynamically

. **Ref-1:** Chapter-15, pp 361-405, Chapter-17, pp. 445-484. **Ref-2:** Chapter-10, pp 147-179

Module-2

[12L+3T]

Chapter-6: ECMAScript and Modern JavaScript Features

[3 L]

Arrow functions and lexical scoping, Template literals and string interpolation, Destructuring assignment and spread syntax, Modules and module bundlers (e.g., Webpack),

Ref-1: Chapter-8-11, pp 207-286,

Ref-3: Chapter-4, pp 25-30, Chapter-7, pp. 40-54, Chapter-27, pp. 257-281.

Chapter-7: The jQuery Library

[4 L]

jQuery Basics, jQuery Getters and Setters, Altering Document Structure, Handling Events with jQuery, Animated Effects, Ajax with jQuery, Utility Functions, jQuery Selectors and Selection Methods, Extending jQuery with Plug-ins, The jQuery UI Library,

Ref-1: Chapter-19, pp 523-585

Chapter-8: HTML5 APIs

[4 L]

Understanding How APIs Work, Using Geolocation, Blobs, Client-Side Databases, Accessing Audio and Video,

Ref-1: Chapter-22, pp 668-715. **Ref-2:** Chapter-17, pp 255-270.

Reference-1: Reference Book: “JavaScript: The Definitive Guide” Author: David Flanagan by Wes McKinney

Reference-2: Reference Book: “Coding with JavaScript For Dummies” Author: by Chris Minnick and Eva Holland by John Wiley & Sons, Inc.

Reference-3: Reference Book: “JavaScript for Impatient Programmers (ES2022 edition)” by Dr. Axel Rauschmayer

Course Outcome

At the end of course, student will able -

CO-1: Demonstrate the ability to work with HTML forms and handle user input in PHP.

CO-2: Analyze and interpret HTTP and GET/POST requests in web development.

CO-3: Apply array-related concepts to solve programming problems.

CO-4: Define and utilize functions in PHP for code modularity and reusability.

CO-5: Execute SQL queries and retrieve results in PHP.

CO-6: Handle errors and exceptions when working with databases in PHP.

Semester-II, Subject-I, Theory Paper-4
SDMAT-122: Object Oriented Software Engineering
[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Introduction to Software Engineering	3 L
	Introduction to Object-Oriented Programming (OOP)	3 L
	Object-Oriented Analysis (OOA)	3 L
	Object-Oriented Design (OOD) Principles	3 L
II	Software Development Life Cycle	3 L
	OOD with UML	3 L
	Object-Oriented Database Concepts	3 L
	Software Documentation and Communication	3 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction to Software Engineering

[3 L]

Overview of software engineering principles and practices, Importance of software development methodologies, Introduction to OOSE and its benefits.

Ref-2: Chapter-1,, pp 1-29

Chapter-2: Introduction to Object-Oriented Programming (OOP)

[3 L]

Basics of OOP concepts: objects, classes, methods, attributes, Encapsulation, inheritance, and polymorphism.

Ref-1: Chapter-1, pp 3-7

Chapter-3: Object-Oriented Analysis (OOA)

[3 L]

Understanding system requirements and use cases, Introduction to UML (Unified Modeling Language), Creating class diagrams and use case diagrams.

Ref-2: Chapter-2, pp 29-77

Chapter-4: Object-Oriented Design (OOD) Principles

[3 L]

SOLID principles and their application in OOD, Overview of design patterns: creational, structural, behavioral, Applying OOD principles and patterns to solve design problems

Ref-2: Chapter-4, pp 710-716

Module-2

[12L+3T]

Chapter-5: Software Development Life Cycle

[3 L]

Introduction to software development methodologies (e.g., waterfall, agile), Overview of the software development process, Collaborative software development and version control basics

Ref-2: Chapter-3, pp 621-651

Chapter-6: OOD with UML

[3 L]

Advanced UML diagrams: sequence diagrams, activity diagrams, Modeling relationships and associations between classes, Creating UML diagrams for a given software system

Ref-2: Chapter-2, pp 29-77

Chapter-7: Object-Oriented Database Concepts

[3 L]

Introduction to object-oriented databases, Mapping objects to relational databases: Object-Relational Mapping (ORM), Basic concepts of database design and querying in an object-oriented context

Ref-2: Chapter-10, pp 393-412

Chapter-8: Software Documentation and Communication

[3 L]

Importance of documentation in software engineering, Writing effective technical documentation for OOSE projects, Communicating software designs and concepts to stakeholders

Ref-2: Chapter-14, pp 576-611

Reference-1: Ivar Jacobson, Object Oriented Software Engineering, Pearson Education INC

Course Outcome

At the end of course, student will able -

CO1: Define object-oriented programming (OOP) concepts and terminology.

CO2: Interpret and analyze UML diagrams and other visual representations of object-oriented systems.

CO3: Construct and organize classes, objects, and their interactions based on given requirements.

CO4: Identify and debug common errors and issues in object-oriented code.

CO5: Create comprehensive object-oriented software designs for complex systems.

CO6: Critically assess the quality and maintainability of object-oriented software systems.

Semester-II, Subject-I, Practical Paper-2

SDMAP-123: Mastering in JavaScript Lab

[Practical, 2 Credits Paper, 60 L]

Syntax and Variables:

1. Write a simple JavaScript program that declares variables of different data types (string, number, boolean) and displays them using console.log.
2. Demonstrate the use of different variable scopes (global and local).

Control Flow and Conditional Statements:

3. Create a program that takes user input and uses conditional statements (if, else if, else) to determine and display whether the input is positive, negative, or zero.

Loops and Iteration:

4. Write a program that uses loops (for or while) to generate and display the Fibonacci sequence up to a specified number.
5. Implement a loop to iterate through an array and print each element.

Function Declarations and Expressions:

6. Define a function that calculates the area of a rectangle using function declaration.
7. Create a function expression that converts Celsius to Fahrenheit.

Parameters and Arguments:

8. Write a function that takes two parameters (base and exponent) and calculates the power of a number.
9. Create a function with default parameters that greet a user with a customizable message.

Function Scopes and Closures:

10. Demonstrate closure by creating a function inside another function, accessing variables from the outer function.
11. Explain the concept of function scope by creating local and global variables within a program.

Object Properties and Methods:

12. Define an object representing a car with properties like make, model, and year. Include a method to display information about the car.

Constructors and Prototypes:

13. Create a constructor function for a Book with properties like title and author. Use prototypes to add a method for displaying book details.

Inheritance and Prototype Chain:

14. Implement inheritance by creating two constructor functions (e.g., Animal and Bird) and demonstrate how Bird inherits from Animal.

Declaring and Initializing Arrays:

15. Create an array of your favorite movies and print each one using a loop.
16. Initialize a multidimensional array representing a 2x2 matrix and display its contents.

Array Methods:

17. Use array methods like push, pop, shift, and unshift to manipulate an array of fruits.
18. Demonstrate the use of map, filter, and reduce on an array of numbers.

Selecting and Manipulating DOM Elements:

19. Build a simple webpage with HTML and use JavaScript to select and modify elements on the page dynamically.
20. Create a button that, when clicked, changes the background color of a specific element.

Event Listeners and Handlers:

21. Set up event listeners for mouse click and keyboard events on the webpage.
22. Create a form with input fields and use event handling to validate and submit the form.

Modifying the DOM Structure and Content Dynamically:

23. Build an interactive to-do list where users can add, remove, and mark tasks as completed.
24. Implement a photo gallery that dynamically adds and removes images from the DOM based on user actions.

Reference-1: Reference Book: “JavaScript: The Definitive Guide” Author: David Flanagan by Wes McKinney

Reference-2: Reference Book: “Coding with JavaScript For Dummies” Author: by Chris Minnick and Eva Holland by John Wiley & Sons, Inc.

Reference-3: Reference Book: “JavaScript for Impatient Programmers (ES2022 edition)” by Dr. Axel Rauschmayer

Course Outcome

At the end of course, student will able -

CO 1: Demonstrate proficiency in using control flow structures and conditional statements to control the execution flow of a program

CO 2: Utilize loops and iteration techniques effectively to iterate over arrays, objects.

CO 3: Understand the concepts of constructors, prototypes, inheritance and various methods available for manipulating arrays in JavaScript.

CO 4: Implement event listeners and handlers to respond to user interactions and browser events.

CO 5: Modify the DOM structure and content dynamically using JavaScript to create interactive and responsive web applications.

Semester-I, Subject-II, Theory Paper-1

ESMAT-111: WebCraft

[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Introduction	3 L
	HTML5 Documents	3 L
	HTML5 Tables and HTML5 images	3 L
	Creating HTML5 forms and Vector Graphics	3 L
II	CSS Selectors and Colors with Typography	2 L
	Box Model and CSS Layout Techniques	2 L
	CSS Transitions and Animations	2 L
	Responsive Web Design and CSS Frameworks	3 L
	CSS Preprocessors with Advanced CSS Topics	3 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction

[3L]

Basic concepts of Computer Network, Introduction to Internet, Understanding Browsers and types of browsers, Introduction to HTML and HTML History, HTML Page Layout and HTML Page Structure.

Ref-1: Chapter-1, pp 1 to 9

Chapter-2: HTML5 Documents

[3 L]

Dividing the document into 2 parts 1.Headers 2.Body, Tags, Elements of an HTML Document 1. Text Elements (Text Attributes) 2. Tag Elements, Marquee and Blink Text, Headings, Paragraphs, Links, Logical styles (source code, text enhancements, variables), Physical Styles (Bold, Italic, underlined, crossed), HTML5 Lists

Ref-1: Chapter-2, pp 10 to 20

Chapter-3: HTML5 Tables and HTML5 images

[3 L]

Tags used in table definition, Tags used for border thickness, Tags used for cell spacing, Tags used for table size, dividing table with lines, dividing lines with cells, Image format (quality, size, type,), Tags used to insert image, Frames: 1 Using Frameset 2 Inline Frame (iframe)

Ref-3: Chapter-6, pp 126 to 144

Chapter-4: Creating HTML5 forms and Vector Graphics

[3 L]

Input tags, Text Field, Password Field , Radio Button, Checkbox, Submit Button, Introduction to SVG, line using SVG, Create circle using SVG, circle using SVG element , Rectangle using SVG

Ref-1: Chapter-6, pp 78 to 86

Module-2

[12L+3T]

Chapter-5: CSS Selectors and Colors with Typography

[2 L]

Overview of CSS and its role in web development. Inline, internal, and external CSS, CSS syntax and Understanding CSS selectors, Combinators and pseudo-classes styling text with CSS, Applying colors and backgrounds.

Ref-3: Chapter-10, pp 226 to 246

Chapter-6: Box Model and CSS Layout Techniques

[2 L]

CSS Box model concept, Floats and clearing floats, CSS positioning (relative, absolute, fixed), Creating multi-column layouts, CSS grid and flexbox.

Ref-3: Chapter-13, pp 300 to 330

Chapter-7: CSS Transitions and Animations

[2 L]

Adding transitions to CSS properties, creating keyframe animations, Using CSS animation libraries and frameworks

Ref-2: Chapter-5

Chapter-8: Responsive Web Design and CSS Frameworks

[3 L]

Introduction to responsive design principles, Media queries for different screen sizes, Creating mobile- first layouts, Introduction to popular CSS frameworks (e.g., Bootstrap), Customizing and extending CSS frameworks.

Ref-2: Chapter-6

Chapter-9: CSS Preprocessors with Advanced CSS Topics

[3 L]

Overview of CSS preprocessors (e.g., Sass, LESS), Variables, mixins, and nesting, compiling preprocessors to CSS, CSS methodologies (e.g., BEM, SMACSS), CSS optimization and performance, CSS best practices and coding standards.

Ref-2: Chapter-6

Reference-1: HTML5 for Web Designers -- Jeremy Keith

Reference-2: Functional CSS: Dynamic HTML without Javascript By Dmintry Nesterkin

Reference-3: Web Design with HTML, CSS, JavaScript and jQuery Set By Jon Duckett

Course Outcome

At the end of course, student will able to -

CO 1: Define WWW, HTML and their page structure, Browsers with types and Identify parts of HTML document

CO 2: Define simple HTML5 and CSS pages with Headings, Paragraphs

CO 3: Set up web pages using CSS for styling text, font, and properties.

CO 4: Use list, Apply different types of lists

CO 5: Use table tag, Apply different tags border thickness, cell spacing, table size, Solve Cell types

CO 6: Use Image formatting tag, Illustrate Frames

CO 7: Use HTML 5 Forms tags (Input tags, Text field, Password field, Radio button),SVG

Semester-I, Subject-II, Theory Paper-2

ESMAT-112: CircuitC

[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Problem Solving using Computers	1 L
	Introduction to C	3 L
	C Tokens	3 L
	Control Structures	3 L
	Functions in C	2 L
II	Arrays	3 L
	Pointer	3 L
	Pointer	3 L
	Structures and Unions	3 L
	File Handling	2 L

Module-1

[12L+3T]

Chapter-1: Problem Solving using Computers

[1 L]

Problem-Solving, Algorithms, Flowcharts, Programming Languages (Machine language, Assembly language, High level languages, Compilers and Interpreters)

Ref-3: Chapter-1, pp 1 to10

Chapter-2: Introduction to C

[3 L]

History, Structure of a C program, Functions as building blocks, Application Areas, C Program development life cycle

Ref-3: Chapter-1, pp10 to 23

Chapter-3: C Tokens

[3 L]

Keywords, Identifiers, Variables, Constants, Data types, Operators and Expressions, Operator types, Precedence and associativity rules, Character input and output, String input and output, Formatted input and output

Ref-3: Chapter-2, pp 44 to 65

Chapter-4: Control Structures

[3 L]

Decision making structures, Loop Control structures, Nested structures, break and continue.

Ref-3: Chapter-3, pp 67 to 80

Chapter-5: Functions in C

[2 L]

Definition, Advantages, Standard library functions, User defined functions: Declaration, definition, function call, parameter passing. return keyword, Scope of variables, storage classes

Ref-3: Chapter-1, pp 33 to 42

Module-2

[12L+3T]

Chapter-6: Arrays

[3 L]

Array declaration, initialization, Types, Passing arrays to functions

Ref-3: Chapter-5, pp 118 to 136

Chapter-7: Pointer

[3 L]

Pointer declaration, initialization, Pointer arithmetic, Pointer to pointer, Arrays and pointers, Dynamic memory allocation

Ref-3: Chapter-5, pp 100 to 111

Chapter-8: String

[3 L]

Declaration and initialization, Standard library functions, Strings and pointers, Array of strings.

Ref-1: Chapter-1, pp 73 to 80

Chapter-9: Structures and Unions

[3 L]

Creating structures, Array of structures, structures to functions, Nested structures, Pointers and structures, Unions, Difference between structures and unions

Ref-3: Chapter-6, pp 137 to 164

Chapter-10: File Handling

[2 L]

Streams, Types of Files, Operations on files, Random access to files

Ref-3: Chapter-7, pp 179 to 185

Reference 1: “Programming With C” (Second Edition) BY Byron Gottfried

Reference 2: “Exploring C” by Yashavant Kanetkar

Reference 3 : “The C Programming Language” by Kernighan BW, Dennis M.

Course Outcome

At the end of course, student will be able -

CO 1 : Student will be able to apply appropriate constructs of C language, coding standards for application development.

CO 2 : Students will be able to use different control structures.

CO 3 : Students will be able to use dynamic memory allocation concepts in various application developments

CO 4 : Students will be able to file handling in various application developments.

Semester-I, Subject-II, Practical Paper-1

ESMAP-113: CircuitC Lab

[Practical, 2 Credits Paper, 60 L]

List of Assignments:

1. Assignment to demonstrate use of data types, simple operators (expressions)
2. Assignment to demonstrate decision making statements (if and if-else, nested structures)
3. Assignment to demonstrate decision making statements (switch case)
4. Assignment to demonstrate use of simple loops
5. Assignment to demonstrate use of nested loops
6. Assignment to demonstrate menu driven programs.
7. Assignment to demonstrate writing C programs in modular way (use of user defined functions)
8. Assignment to demonstrate recursive functions.
9. Assignment to demonstrate use of arrays (1-d arrays) and functions
10. Assignment to demonstrate use of multidimensional array(2-d arrays) and functions
11. Assignment to demonstrate use of pointers
12. Assignment to demonstrate concept of strings (string & pointers)
13. Assignment to demonstrate array of strings.
14. Assignment to demonstrate structures and unions
15. Assignment to demonstrate file handling (text files)

Course Outcome

At the end of course, student will able -

CO 1: Student will be able to define and use various data types and operators in C to create and evaluate expressions.

CO 2: Student will be able to write programs that use simple and nested loops for iterating over data and performing repetitive tasks.

CO 3: Student will be able to design and implement interactive programs with menus to allow users to select options and execute various functionalities.

CO 4: Student will be able to use one-dimensional and two-dimensional arrays in conjunction with functions to manage and process data.

CO 5: Student will be able to use one-dimensional and two-dimensional arrays in conjunction with functions to manage and process data.

CO 6: Student will be able to manipulate and process strings and arrays of strings effectively, using functions and pointers as needed.

Semester-II, Subject-II, Theory Paper-3

ESMAT-121: Computer Networks

[Theory, 2 Credits Paper, 30 L]

Module	Name of the Chapter	No. of lecture
I	Introduction to Computer Network	3 L
	Network Models	3 L
	Physical Layer	3 L
	Data link layer	3 L
II	Network Layer	4 L
	Transport Layer	4 L
	Application Layer	4 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction to Computer Network

[3 L]

Introduction to Computer Network, Types of Computer Network, Network Topologies, Network Devices.,

Ref-1: chapter 1 pp 21 to 26

Chapter-2: Network Models

[3 L]

internet, protocols and standards, the OSI model, layers in OSI model, TCP/IP suite, Addressing, Analog and digital.

Ref-1: chapter 5 pp 85 to 91

Chapter-3: Physical Layer

[3 L]

digital transmission, multiplexing, transmission media, circuit switched networks, virtual circuit networks, switch and Telephone network.

Ref-3: chapter 2 pp 39 to 61

Chapter-4: Data link layer

[3 L]

Introduction, Block coding, cyclic codes, checksum, framing, flow and error control, Noiseless channels, noisy channels, HDLC, point to point protocols

Ref-3: chapter 3 pp 72 to 92.

Module-2

[12L+3T]

Chapter-5: Network Layer

[4 L]

Logical addressing, internetworking, tunnelling, address mapping, ICMP, IGMP, forwarding, uni-cast routing protocols, multicast routing protocols

Ref-4: chapter 4 pp 313 to 325

Chapter-6: Transport Layer

[4 L]

Process to process delivery, UDP and TCP protocols, SCTP, data traffic, congestion, congestion control, QoS, integrated services, differentiated services, QoS in switched networks.

Ref-3: chapter 8 pp 290 to 298

Chapter-7: Application Layer

[4 L]

Introduction to Application Presentation Session Layer, Domain name space, DNS in internet, electronic mail, FTP, WWW, HTTP, SNMP, multi-media, network security

Ref-3: chapter 9 pp 322 to 346

Reference-1: An Engineering Approach to Computer Networks-S.Keshav,2nd Edition,Pearson Education

Reference-2: Understanding communications and Networks,3rd Edition, W.A.Shay,Cengage Learning

Reference-3: Computer and Communication Networks ,Nader F. Mir, Pearson Education

Reference-3: Computer Networking:A Top-Down Approach Featuring the Internet,James F.Kurose,K.W.Ross,3rd Edition,Pearson Education.

Course Outcome

At the end of course, student will able -

CO-1: Summarize the basics of Computer Networks and its types

CO-2: Illustrate the routing algorithms.

CO-3: Identify error detection and correction in data link layer.

CO-4: Explain and formulate IP addresses and sub netting.

CO-5: Comprehend the application layer protocols.

Semester-II, Subject-II, Theory Paper-4

ESMAT-122: Data CircuitC

[Theory, 2 Credits Paper, 30 L]

Module	Chapter No	No. of lecture
I	Introduction to data structures	2 L
	Algorithm analysis	2 L
	Linear data structures	4 L
	Linked List	4 L
II	Stacks	2 L
	Queues	2 L
	Trees	4 L
	Graph	4 L

Note: Each lecture is of 1 hour

Module-1

[12L+3T]

Chapter-1: Introduction to data structures

[2L]

Concept, Data type, Data object, ADT, Need of Data Structure, Types of Data Structure

Ref-1: chapter 1 pp 1 to 4

Chapter-2: Algorithm analysis

[2L]

Algorithm–definition, characteristics, Space complexity, time complexity, Asymptotic notation (Big O, Omega Ω)

Ref-1: chapter 1 pp 4 to 21

Chapter-3: Linear data structures

[4L]

Introduction to Arrays - array representation, Searching algorithms with efficiency- Linear search, binary search, Sorting algorithms with efficiency- Bubble sort, Insertion sort, Merge sort, Quick Sort

Ref-1: chapter 7 pp 319 to 357

Chapter-3: Linked List

[4L]

Introduction to List, Implementation of List – static & dynamic representation, Types of Linked List, Operations on List, Applications of Linked List – polynomial manipulation, Generalized linked list – concept & representation

Ref-3: chapter 4 pp 135 to 163

Module-2

[12L+3T]

Chapter-4: Stacks

[2L]

Introduction, Representation-static & dynamic, Operations, Application - infix to postfix & prefix, postfix evaluation, Simulating recursion using stack

Ref-1: chapter 3 pp 101 to 128

Chapter-5: Queues

[2L]

Introduction, Representation -static & dynamic, Operations, Circular queue, priority queue (with implementation), Concept of doubly ended queue

Ref-1: chapter 3 pp 101 to 128

Chapter-6: Tree

[4L]

Concept & Terminologies, Binary tree, binary search tree, Representation – static & dynamic, Operations on BST – create, Insert, delete, traversals (preorder, inorder, postorder), counting leaf, non-leaf & total nodes , non-recursive inorder traversal, Application - Heap sort, Height balanced tree- AVL trees- Rotations, Red black Tree

Ref-1: chapter 5 pp 186 to 253

Chapter-6: Graph

[4L]

Concept & terminologies, Graph Representation – Adjacency matrix, adjacency list, inverse adjacency list, adjacency multilist, orthogonal list, Traversals – BFS & DFS, Applications – AOV network – topological sort , AOE network – critical path , Dijkstra's Shortest path algorithm

Ref-1: chapter 6 pp 257 to 309

Reference-1: “Fundamentals of Data Structures in C” Ellis Horowitz Sartaj Sahani, Susan Anderson Freed

Course Outcome

At the end of course, student will be able to -

CO 1: Student will be able to Discuss fundamental concepts of Data Structure, abstract data type, and algorithm analysis.

CO 2: Students will be able to summarize different searching and sorting techniques using array.

CO 3: Students will be able to describe linear data structure Stack and its application

CO 4: Students will be able to explain linear data structure Queue and its types (Linear Queue, Circular Queue, Priority Queue).

CO 5: Student will be able to summarize different types of Linked List (singly linked list, doubly linked list, linear and circular linked list)

CO 6: Student will be able to discuss nonlinear data structure Tree using operations like searching, insertion, deletion, and traversing mechanism

CO 7: Student will be able to explain nonlinear data structure Graph using operations like traversing mechanism

Semester-II, Subject-II, Practical Paper-2

ESMAP-123: Data CircuitC Lab

[Practical, 2 Credits Paper, 60 Lectures]

List of Experiments:

1. Assignment to demonstrate searching algorithms (Linear, Binary search)
2. Assignment to demonstrate Sorting algorithms (Bubble, Insertion)
3. Assignment to demonstrate Sorting algorithms (Quick, Merge)
4. Assignment to demonstrate Linked List (Singly linked list)
5. Assignment to demonstrate operations on Singly linked list (union, intersection)
6. Assignment to demonstrate Linked List (Doubly linked list)
7. Assignment to demonstrate Polynomial manipulation (addition, Multiplication)
8. Assignments to demonstrate stack using static & dynamic implementation.
9. Assignment to demonstrate convert infix expression into postfix and evaluate it.
10. Assignment to demonstrate infix expression into prefix and evaluate it.
11. Assignment to demonstrate linear queue of strings using array.
12. Assignment to demonstrate Binary Search Tree creation and inorder, preorder, postorder recursive traversal of all nodes.
13. Assignment to demonstrate Non_recursive traversal using stack(inorder, preorder, postorder) on the BST
14. Assignment to demonstrate graph as adjacency matrix. Calculate indegree, outdegree and total degree of each vertex.
15. Assignment to demonstrate graph as adjacency matrix and convert it into adjacency list.

Course Outcome

At the end of course, student will able -

CO 1: Student will be able to demonstrate proficiency in implementing linear and binary search algorithms.

CO 2: Student will be able to understand the trade-offs between different sorting algorithms.

CO 3: Student will be able to create and manipulate singly and doubly linked lists.

CO 4: Student will be able to create and traverse binary search trees using recursive and non-recursive methods.

CO 5: Student will be able to apply stack operations to solve problems.

CO 6: Student will be able to represent graphs using adjacency matrices and adjacency lists.

Indian Knowledge System Semester-I,
GIKST-111: Indian Knowledge System
[2 Credits, 30 L]

UNIT -I: Bharatiya Civilization and Knowledge System

(6 hours)

The primary sources of ancient Indian philosophy: Vedas and Upanishads, Overview of the six schools of Indian philosophy. Ancient Indian civilization: the discovery of the Saraswatī River and the Saraswatī-Sindhu civilization. The ancient Indian education system: Gurukul system, Takṣaśilā University, Nālandā University, and their notable alumni. History of knowledge export from Bhārata.

[प्राचीन भारतीय तत्त्वज्ञानाचे प्राथमिक स्रोत: वेद आणि उपनिषद, भारतीय तत्त्वज्ञानाच्या सहा शाळांचे सिंहावलोकन. प्राचीन भारतीय संस्कृती: सरस्वती नदीचा शोध आणि सरस्वती-सिंधू संस्कृती. प्राचीन भारतीय शिक्षण पद्धती: गुरुकुल पद्धती, तक्षशिला विद्यापीठ, नालंदा विद्यापीठ आणि त्यांच्या प्रसिद्ध माजी विद्यार्थी. भारतातून ज्ञान निर्यातीचा इतिहास.]

UNIT-II: Arts, Literature, and Scholars in Ancient India

(6 hours)

The history of ancient Indian art, music, and dance. Naṭarāja a unique symbol of Indian art. In the field of literature, the works of Agastya, Ghoṣā, Vālmīki, Patañjali, Gārgī, Vedwalmiki, Lopāmudrā, Maitreyī, and Bodhāyana. In the fields of science and medicine, the contributions of Caraka, Suśruta, Jīvaka, Nāgārjuna, Kaṇāda, Patañjali, Kauṭīlyā, Pāṇini, Thiruvalluvar, Ādi Śaṅkarācārya, Bhāskarācārya, and Mādhavācārya

[प्राचीन भारतीय कला, संगीत, आणि नृत्याचा इतिहास. नटराज हा भारतीय कलेचा एक अद्वितीय प्रतीक. साहित्य क्षेत्रात अगस्त्य, घोषा, वाल्मीकी, पतंजली, गार्गी, वेदवाल्मीकि, लोपा मुद्रा, मैत्रेयी आणि बोधायन यांचे कार्य. विज्ञान आणि वैद्यक क्षेत्रात चरक, सुश्रुत, जीवक, नागार्जुन, कणाद, पतंजली, कौटिल्य, पाणिनी, तिरुवल्लुवर, आदि शंकराचार्य, भास्कराचार्य आणि माधवाचार्य यांचे योगदान..]

UNIT-III: Ancient Science, Astronomy, and Mathematics

(6 hours)

Āryabhaṭa and Varāhamihira's contributions, concepts like matter, life, and gravity, technological advancements like Sage Agastya's battery model, the velocity of light, and Vimāna aeronautics. Vedic cosmology, Bhāratiya Kāla-gaṇanā, Kerala School for Mathematics and Astronomy, history and culture of astronomy, celestial bodies such as the sun, earth, moon, eclipses, earth's spherical nature and rotation, archaeoastronomy, mathematical concepts zero, pi, number system, Pythagoras theorem, and Vedic mathematics.

[आर्यभट्ट आणि वराहमिहिरांचे योगदान, पदार्थ, जीवन, आणि गुरुत्वाकर्षण या संकल्पनांचे महत्त्व, संगणकीय प्रगती, जसे की सेज अगस्त्यांच्या बॅटरी मॉडेल, प्रकाशाची वेगता, आणि विमान वायुयान, वैदिक ब्रह्मांडशास्त्र, भारतीय काल-गणना, केरळ संख्याशास्त्र आणि खगोलशास्त्राचा इतिहास व संस्कृती, सूर्य, पृथ्वी, चंद्र, ग्रहण, पृथ्वीच्या गोलाकार आणि घुमट, पुरातत्त्वशास्त्र, शून्य, पाई, संख्या प्रणाली, पायथागोरसचा प्रमेय, आणि वैदिक गणित.]

UNIT-IV: Ancient Engineering, Technology, and Architecture

(6 hours)

Urban planning and sophisticated drainage systems: Mohenjo-Daro and Harappa. Rock-cut architecture: Ajanta and Ellora caves, temple designs found in Khajuraho and Konark. Stepwells (Baolis): water management systems. Metallurgical techniques for metal extraction and artifact crafting. Textile technology such as weaving and dyeing. Scientific instruments used for astronomical observations and calculations. Bhāskarācārya and his contributions to mathematics. Trade and Commerce in Ancient India.

[नगर योजना आणि प्रगत निर्जलीकरण प्रणाली: मोहनजो-दारो आणि हरप्पा. शिलाचित्र कला: अजंता आणि एलोरा लेण्यांची चालक शैली, खजुराहो आणि कोणार्कमधील मंदिर डिझाइन. पायराडी (बावली): पाण्याचे

व्यवस्थापन प्रणाली. धातूची शैली: धातू निकालण्याची आणि अभिजात वास्तुकला. कापडी तंत्रज्ञान जसे की बुनणे आणि रंगणे. खगोलशास्त्रात वापरलेले वैज्ञानिक उपकरण आणि गणना. भास्कराचार्य आणि त्यांचा गणितातील योगदान. प्राचीन भारतातील व्यापार आणि वाणिज्य.]

UNIT-V: Life, Environment, and Health in Ancient India

(6 hours)

Ancient Indian Religions: Hinduism, Buddhism, Jainism, And Sikhism: Teachings and Philosophies, Ancient agricultural practices, crop cultivation techniques, and innovations. Comprehensive healthcare systems integrating Āyurveda, yoga, and other traditional practices. Surgical techniques and procedures practiced in ancient India

[प्राचीन भारतीय धर्म: हिंदूधर्म, बौद्धधर्म, जैनधर्म, सिखधर्म: शिक्षण आणि दर्शन, प्राचीन कृषि प्रथा, फसल उत्पादन तंत्रज्ञान आणि नवीन उपक्रम. आयुर्वेद, योग आणि इतर पारंपरिक व्यवस्थांच्या संयुक्त स्वस्थ्यव्यवस्था. प्राचीन भारतातील क्षेत्रज्ञान तंत्रज्ञान आणि प्रक्रिया.]

Text books:

1. History of Science in India Volume-1, Part-I, Part-II, Volume VIII, by Sibaji Raha, et al. National Academy of Sciences, India and The Ramakrishna Mission Institute of Culture, Kolkata (2014).
2. Textbook on The Knowledge System of Bhārata by Bhag Chand Chauhan,

Reference Books:

1. A History of Ancient and Early Medieval India: From the Stone Age to the 12th Century" by Upinder Singh:
2. Pride of India- a Glimpse of India's Scientific Heritage edited by Pradeep Kohle et al. Samskrit Bharati (2006).
3. Vedic Physics by Keshav Dev Verma, Motilal Banarsidass Publishers (2012).
4. "Indian Art and Culture" by Nitin Singhania, McGraw Hill

Course Outcome

At the end of course, student will able -

CO:1 Understanding the foundational concepts and principles of IKS

CO:2 Appreciating the contributions of ancient Indian scholars and scientists

CO:3 Integrating IKS perspectives into modern academic and practical contexts

CO:4 Promoting cultural awareness and appreciation of India's intellectual heritage

Skill Enhancement Course Semester-I,
SDSEP-111 Static Web Design
[Practical, 2 Credits Paper, 60 L]

List of Experiments:

1. Project Planning and Analysis
2. Designing the Project Structure
3. Implementing Core Functionality
4. User Interface Design and Development-I
5. User Interface Design and Development-II
6. User Interface Design and Development-III
7. User Interface Design and Development-IV
8. User Interface Design and Development-V
9. Documentation-I
10. Documentation-II

Course Outcome

At the end of course, student will able -

CO 1: Student will be able to conduct thorough analysis and gather requirements to inform project design and implementation.

CO 2: Student will be able to create and present wireframes and site architecture diagrams that effectively organize content and navigation.

CO 3: Student will be able to build a well-structured HTML foundation for a website and apply CSS styles to achieve a consistent look and feel.

CO 4: Student will be able to design and develop user interfaces for different website pages, incorporating advanced features and interactive elements.

CO 5: Student will be able to design and develop user interfaces for different website pages, incorporating advanced features and interactive elements.

Skill Enhancement Course Semester-II,
SDSEP-121: Dynamic Web Design:PHP
[Practical, 2 Credits Paper, 60 L]

List of Experiments:

1. Project Planning and Analysis
2. Designing the Project Structure
3. Implementing Core Functionality
4. User Interface Design and Development-I
5. User Interface Design and Development-II
6. User Interface Design and Development-III
7. Data Handling and Storage-I
8. Data Handling and Storage-II
9. Testing and Quality Assurance
10. Documentation-I
11. Documentation-II

Course Outcome

At the end of course, student will able -

CO 1: Student will be able to explain the principles and functionalities of PHP and its role in web development.

CO 2: Student will be able to summarize the process of handling user input and form submissions in PHP.

CO 3: Student will be able to apply PHP concepts and techniques to integrate databases and perform CRUD operations (create, read, update, delete) on data

CO 4: Student will be able to evaluate the efficiency and effectiveness of different PHP programming approaches in web application development.

CO 5: Student will be able to design and develop a comprehensive PHP project from scratch, integrating various features like user authentication, data validation, and database interactions.

Value Education Course Semester-I
VEAET-111 Environmental Awareness
2 Credits, 30 L

MODULE-1

[12 L + 3T]

Unit 1: Introduction to environmental studies

[02 L]

- Multidisciplinary nature of Environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

Unit 2: Ecosystems

[06 L]

- Concept and structure.
- Ecosystem functions.
- Types of Ecosystem.

Unit 3: Biodiversity and Conservation

[07 L]

- India as a mega-Biodiversity nation; Endangered and endemic species of India
- Threats to Biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions;
- Conservation of Biodiversity: In-situ and Ex-situ conservation of Biodiversity.

MODULE-2

[12 L + 3T]

Unit 4: Environmental Pollution

[07 L]

- Environmental pollution: types, causes, effects and controls; Air, Water, and Soil pollution.
- Solid and liquid waste management: Control measures of urban and industrial waste.

Unit 5: Environmental Programs and Policies

[08 L]

- Developed Countries, Developing Countries.
- New Environmental policy of India; Government initiatives.

References:

1. Singh R. B. (1993) Environmental Geography. Delhi, India: Heritage Publishers.
2. Odum, E.P., Odum, H.T. & Andrews, J. 1971. Fundamentals of Ecology. Philadelphia: Saunders.
3. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.
4. Rosencranz, A., Divan, S., & Noble, M. L. 2001. Environmental law and policy in India. Tripathi 1992.
5. Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.
6. Gadgil, M., & Guha, R. 1993. This Fissured Land: An Ecological History of India. Univ. of California Press.
7. Gleeson, B. and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.
8. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi

Value Education Course VEC-Sem-II;
VEAET-121: Democracy and Indian Constitution
[2 Credit, 30 L]

Unit-1: The Concept of Democracy

- 1.1 Meaning – Nature and Definition.
- 1.2 Origin and Development.
- C. Types of Democracy. Direct and Indirect

Unit-2: A. Major Feature of Democracy.

- B. Social Democracy.
- C. Demerits of Democracy.

Unit-3: Making of Indian Constitution.

- A. Fundamental Rights in the Indian Constitution.
- B. Basic Structure of the Indian Constitution.

Unit: 4 A. Fundamental Duties of Citizens

- B. Election Commission of India (Electoral Reforms/ E.V.M./Code of Conduct)

English Reference Books/Text

1. An introduction to Political Theory, Author: Rajiv Bhargava Publication: Pearson.
2. Bryce, Modern Democracies.
3. E. Asirvatham, political Theory.
4. Bharatiya Rajyaghatna va Ghatanatmak prakriya, Author: Tukaram Jadhav
Publication: Unique Academy Pune.
5. Introduction to the Constitution of India Author: Dr. Durga

मराठी संदर्भ साधने:

- १) डॉ. बाळ कांबळे, २०१२, भारताची राज्यघटना, राजकारण व कायदा डायमंड प्रकाशन पुणे.
- २) पाटील बी. बी., २०१६ भारतीय शासन आणि राजकारण फडके प्रकाशन कोल्हापूर.
- ३) डॉ. जोती बीडलन, डॉ. देशपांडे. भारतीय संविधानाचा परिचय, निराली प्रकाशन, पुणे.
- ४) प्राचार्य. काने राजकीय सिद्धांत आणि राजकीय विचार, पिंपळापुरे प्रकाशन, नागपूर
- ५) प्रा. प्रमोद तांबे, राज्यशास्त्र परिचय, निराली प्रकाशन, पुणे.
- ६) डॉ. विजय देव, आधुनिक राजकीय विश्लेषण कोश, डायमंड प्रकाशन, पुणे,
- ७) भार्गव राजीव, राजकीय सिद्धांत परिचय, अनुवाद-हेमंत खानझोडे, पीयरसन प्रकाशन.
- ८) ना य. डोळे, राजकीय विचारांचा इतिहास, कॉन्टिनेन्टल प्रकाशन, पुणे.

PROGRAMME OUTCOMES

Political Science undergraduate program was born out of recognition of the increasing significance of cross-disciplinary studies in the social sciences. The program is organized around the combined perspectives and analytical tools of Sociology, Political Science, International Relations, and History.

1. Develop knowledge of theories, concepts, and research methods in humanities and social sciences.
2. Assess how global, national and regional developments affect society.
3. The Political Science degree furnishes the students with a unique multidisciplinary approach in social sciences and prepares them for further academic study and for careers in the public and the private sector.

Video Lecture Links

Unit 1: <https://youtu.be/fJaLKyF8Qhw?si=qhL26a4lYps9UV4C>

Unit 1 and 2 : <https://www.youtube.com/watch?v=DXcJoihea7Y>

Unit 2: <https://www.youtube.com/watch?v=GlyiyEBlpH4>

Unit 3: <https://youtu.be/XCvTZzvzh2E?si=kd4eVMXfTTf-IsAL>

Unit 4: https://drive.google.com/file/d/1v_E9q_5UwgyVXF0BcR35u2LOgYVMgYa7/view

Ability Enhancement Course (AEC) Sem-I;

HIAET-111: Hindi-I

2 Credit, 30 L

Title of the Course	सामान्य ह०िंदी SEMESTER --I & II	Number of Credits: 02
Course Code	HIAET-111 AEC सामान्य ह०िंदी - I [क०ानी, कहिता और हनबिंध लेखन] HIAET-121 AEC सामान्य ह०िंदी - II [क०ानी, कहिता और व्या०ि ०ाररक ह०िंदी]	
Course Outcomes (COs) On completion of the course, the students will be able to:		
CO1	ह०िंदी क०ाहिय०ि की गरिमा क० समझ जायेंगे।	
CO2	चरित्र प्रधा०ि क०ाहिय०ि की जा०िका०िी प्राप्त ँिगी।	
CO3	घा०ा प्रधा०ि क०ाहिय०ि से परिहचत ँ जायेंगे।	
CO4	आत्मकथा पिक हिषय०ि पि हिबिंध हिखिा हसख जायेंगे।	
CO5	सिका०िी कायाा०िय०ि के हिए पत्राचा०ि कि०िा हसख जायेंगे।	
CO6	सिका०िी पत्राचा०ि के म०त्व क० समझ जायेंगे।	
Unit No.	Title of Unit and Contents	No. of Lectures
I	अ] क०ानी हिधा - १. एक ट की भि हमटटी- माधि०िाि सप्रे २. कफि-प्रेमचिंद ३. आकाश द्वीप- जयशिकि प्रसाद ४. क्लेम- म० ँिाके श	12
II	आ] कहिता हिधा- १. फू०ि की चा०- माखि०िाि चतु०िंदी २. जि-जि का चे०िा एक- गजा०िि माधि मुक्तिब०ध ३. माँ- हचत्रा ड०िगे ४. ँिाँट आउट- प्रीण क० टि	10
III	इ] साह०्येत्तर पाठ्यक्रम १. हिबिंध ँिेखि[पयाा०ििण, आत्मकथा, हिजा०ि, समस्या, समाचा०ि आहद] २. पत्राचा०ि ँिेखि[सिका०िी गैि सिका०िी]	8

सिंदर्भ ग्रन्थ-

१]ह5िंदी कथाधािा- सिंदू धिथ हसिं5

२]गद्य िैभि- सिं. िाजेंद्र खैििाि

३]िसुधा- हचत्रा ड िंगे

४]हफि से शून्य- प्रीण क टा

५]ह5िंदी कहिता- सिंदू धिथ हसिं5

Ability Enhancement Course (AEC)- Sem.-II

HIAET-121: Hindi-II

2 Credit, 30 L

F.Y. BSC,BCS,VOC,BBA &ALL SCI DEPT Semester II		
Title of the Course	II –SEMESTER HIAET-121 सामान्य हिंदी –II [कानी, कहिता और व्याकरणक हिंदी]	Number of Credits : 02
Course Code	HIAET-121 सामान्य हिंदी – II	
Course Outcomes (COs) On completion of the course, the students will be able to:		
CO1	हिंदी कथाहयि की गरिमा क समझ िंगे ।	
CO2	चरित्र प्रधाि कथाहयि की जािकारिी प्राप्त कि िंगे ।	
CO3	घटाि प्रधाि कथाहयि से परिहचत 5 जायेगे ।	
CO4	कल्पाि हिस्ताि का मत्व समझ िंगे ।	
CO5	पारिभाषक शब्ि की जािकारिी प्राप्त कि िंगे ।	
CO6	पारिभाषक शब्ारिी की मत्ता क समझ जायेंगे ।	
Unit No.	Title of Unit and Contents	No. of Lectures
I	अ) कानी हिधा – १. उसै कथा था– चिंद्रधि शमाा गुिी २. खेि– जैिन्द्र कु माि ३. िाि पाि की बेगम– फीश्विाथ िे णु ४. पािाती एक– दीप्ती खिंडेिाि	10
II	ब) कहिता हिधा – १. त डती पत्ति– हिािा २. 5म दीाि ि की क्या 5स्ती– भगिती चिण िमा ३. अकाि औ उसके बाद– िागाजाि ४. साथी दुःख से घबिता 5ैं– िीजि	10

III	क] पाठ्यपुस्तके तर 2.कल्पना हिस्तार 3.पाररर्ाहिक शब्दािली १.कल्पना हिस्तार[हििया]:- १]ज5ााँ सुमहत ि5ाँिं सम्पहत िाँिा, २]हजि ख जा हति पाइयाँिं ग5िे पािी पैठी, ३]मि के 5ाँिे 5ाँि 5ैं.मि के जीते जीत ४]ि5ी मिष्य 5ैं हक ज मिष्य के हिए मि, ५]पिाधीि सपि हाँ सुख ि5ी २.पाररर्ाहिक शब्द[अंग्रेजी के 30 शब्द ह िंदी पयाभय :-	10
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1]ACCOUNT-िेखा/ खाता	
2[BILL-हिधायक	
3[CIRCULAR-परिपत्र	
4[COMMISSION-आय ग	
5[DESIGNATION-पदिम	
6[DIRECTOR-हिदेशक	
7[EMPLOYEE-कमाचािी	
8[FUND-हिहध	
9[FACULTY-सिकाय	
10[GRANT-भुदाि	
11[HEAD-प्रमुख	
12] INVESTIGATER-अन्वेषक	
13[JUDGE-न्याय देिेिािा	
14[ISSUE-जािी किाि	
15[JUNIOR-कहिष्ठ	
16[LEAVE-छुट्टी/ अिकाश	
17[MANAGER-प्रबिंधक	
18] MINISTER-मित्री	
19[MINISTRY-मित्रािय	
20[NOTICE-सूचा	
21[OFFICIAL- कायााियीि	
22[PLAN-य जिा	
23[POST-पद	
24[QUALIFICATION-अ5ता,य ग्यता	
25[RECORD-अहभिख/ रिकाडा	
26[REGISTRATION-पिजीकिण	
27[SANCTION-स्वीकृ हत/ मिंजूिी	
28[SECRETARY-सहचि	
29[TRANSFER-तबादि/ बदिी	
30[UNDERTAKING-उपक्रम/ िचिबद्धता	
31[WHIP-सचेतक	

सिंदर्भ ग्रन्थ-

१]ह5िंदी कथाधािा- सिं.ह5िंदी अध्ययि मिंडि,प्रा.िामकृ ण म िे म5ाहिद्यािय,आकु डी पुणे- ४४

२]काव्य िैभि- सिं . ह5िंदी अध्ययि मिंडि,प्रा.िामकृ ण म िे म5ाहिद्यािय,आकु डी पुणे- ४४

अंक हिर्ाजन- पूराभक= 5

Curricular Course(CC)Sem-II
CCPEP-121: Physical Education and Sports
2 Credits, 60L

Theory and Active Participation

4. Introduction to Physical Education and Sports
5. Concept of Physical Education, its Definition and Scope.
6. Concept of Physical Fitness
7. Components of Health Related Physical Fitness
8. (Cardio-vascular Endurance, Muscular Strength, Endurance, Flexibility, and Body Composition)
9. Components of Skill Related Physical Fitness (Agility, Balance, Co-ordination, Speed, Power, Reaction Time)
10. Concept of Health, Wellness, and Health & Hygiene.

Fitness Assessment & Participation in Sports

In order to improve the physical fitness standards of students, they should be given opportunity and facilities to participate in Physical Fitness Activity and a game / sport from the list of Association of Indian Universities, New Delhi (List of events available on website www.aiuweb.org). The choice of game / sports will be according to the facilities available in the college.

Participation in Fitness Activity:

4. Every student should participate in Fitness Activity for 12 hours.

Participation in Games and Sports:

1. A student will have to select one game/sport from the list of Association of Indian Universities, New Delhi (List of events available on website www.aiuweb.org). The choice of game/sports will be according to the facilities available in the college.

Every student should participate in Games and sports for 12 hours.

Fitness Assessment:

25. Cardiovascular Endurance
26. Flexibility
27. Muscular Strength Endurance
28. Body Composition (No marks)

EVALUATION STRUCTURE:

Table 1

Course	Type of Assessment	Marks	Mode of Evaluation
COURSE – CCPEP-121 PHYSICAL EDUCATION, SPORTS	Internal Assessment	15	Assignment (15 marks) Project on the selected Sports Event
	External Assessment	35	Participation (10 marks) (24 hrs. of participation in Fitness and selected game/sport).

			Practical – Fitness Test- 25 marks
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To complete first credit of Course – Physical Education, Sports, Teacher will have to **conduct 5 theory lectures** (college may schedule these lectures during first or second semester before fitness assessment) and student will have to attend 5 theory lectures and has to participate in Fitness and selected game / sport for **minimum 24hrs.and submit the assignment.**

1. Procedure for fitness tests are given in the guidelines section which also includes Norms Table. Marks to be awarded in accordance with the norms table.

Sr. No.	Component	Test	Marks
1	Cardiovascular Endurance (Any One)	1. Modified Queens College Test or 2. 12 Min. Run Walk	10
2	Flexibility	2. Sit and Reach Test	05
3	Muscular Strength Endurance	3. Bent Knee Sit Ups	10
4	Body Composition	4. Fat Percentage	-----
		Total	25

CONSIDERATIONS AND EXEMPTIONS:

Differently Able Students

Differently able students will be exempted from the course **CCPEP-121 PHYSICAL EDUCATION AND SPORTS** after producing the valid documents. This is not depriving them from the equality of opportunity with other students. The student shall have to submit his/her medical certificate at the time of admission from a Civil Surgeon of respective District Civil Hospital.

Important Note:

1. Temporary illness will not give students exemption from the course. If he / she miss any assessment/task he / she will be given opportunity in the ensuing semester.

Exemption

Any Student representing college / institute in the enlisted games of Association of Indian Universities / Indian Olympic Association / State Olympic Association shall be **exempted from mandatory participation in selected game / sport for minimum 24hrs** of first credit of Course – **CCPEP-121 Physical Education and Sports.**

GE/OE Basket for Science Students

Sem.-I

1. Basic Course in stock market
2. Entrepreneurial Skill Development-I
3. Indian Constitution and Political Process
4. Introduction to GIS
5. Psychology of adjustment and stress
6. Business Communication.
7. Corporate social responsibility

Sem.-II

1. Advance course in stock market
2. Entrepreneurial Skill Development-II
3. Practical on Indian Constitution and Political Process
4. Practical on GIS
5. Psychological Interpersonal Relationship
6. E-Commerce
7. Basics of hardware and networking

Question Paper Pattern

Marks: 35		Time: 2 Hour Cresits-02	
Instructions to the Candidate:			
1. All questions are compulsory.			
2. Figures to right indicate full marks.			
3. Use of Log table and scientific calculator is allowed.			
Question-1	Solve Any five of the following (Short Answers) i. ii. iii. iv. v. vi. vii.	Three def. type, two tricky questions and two questions problem type (if applicable)	5 Marks
Question-2	A. Solve any two of the following i. ii. iii.	Note or Describe type questions	6 Marks
	B. Solve the following Single question of four marks or two questions of 2 marks.	Problem type or tricky reasoning type question	4 marks
Question-3	A. Solve any two of the following i. ii. iii.	Write Note / Differentiate type questions	6 Marks
	B. Solve the following Single question of four marks or two questions of 2 marks.	Problem type or Derive equation or Tricky discussion type question	4 marks
Question-4	Solve Any four of the following i. ii. iii. iv. v.	Application type, Justification type question	10