KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

PROGRAMME PROJECT REPORT

ON

BACHELOR OF COMPUTER APPLICATIONS (COMPUTER APPLICATIONS)

(Four Year Undergraduate Programme to be offered from 2023-24 Academic Sessions onwards as per NEP 2020)

Submitted to
UNIVERSITY GRANTS COMMISSION
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Submitted by
K. K. HANDIQUI STATE OPEN UNIVERSITY
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Registrar
Krishna Kanta Handiqui
State Open University
Guwahati

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BACHELOR OF COMPUTER APPLICATIONS

FOR THE ACADEMIC SESSION 2023-24

1. OVERVIEW

The Four Year Undergraduate (UG) Programmes of Krishna Kanta Handiqui State Open University (KKHSOU) are being prepared in accordance with the requirements of the NEP 2020, which are to be offered from the July 2023 academic session onwards. The Programmes are being prepared as per the Curriculum and Credit Framework for the Four Year UG Programmes of the UGC (December, 2022) as well as subsequent official notification and the Model Framework of the Department of Higher Education, Government of Assam, dated January 25, 2023 regarding the implementation of the NEP 2023 in the State of Assam.

The 35th Meeting of the Academic Council of the University held on 18-01-2023 resolved that the Programme Project Reports (PPR) of the proposed programmes of the University would accommodate the features of NEP 2020 and UGC ODL Regulations 2020. Accordingly, the University has adopted the UGC Curriculum and Credit Framework for the UG Programmes with provisions of lateral entry and exit; and multidisciplinary/interdisciplinary focus. Also, the assessment and evaluation has also been revised to letter grades with Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA).

The Programmes on offer, thus, incorporate discipline specific core (DSC) courses along with ranges of elective courses (DSE), which are expected to enable the learners for wider exposure and opportunities; e.g. intending learners of BCA can opt for any course from social sciences as minor just as those from social sciences can opt for courses in mathematics or mass communications. Besides, bundles of courses are also being provided as ability enhancement courses (AEC); skill enhancement courses (SEC); and value added courses (VAC) to fulfil requirements of the NEP 2020.

Notably, the academic disciplines of the University are organised as School System; hence, it is expected that implementation of multidisciplinary/interdisciplinary programmes and courses would be relatively smooth and undemanding. To this effect,

necessary processes for attaching relevant faculty from related disciplines have been arranged. The University has also registered in the Academic Bank of Credit (ABC) for seamless transfer of credit allowing flexibility to the learners as mandated by the NEP 2020.

The Four Year UG Programme Framework of the University incorporates elements of the Indian knowledge system, including Indian languages, culture, values, and traditions. The second semester includes a 3 credit course on yoga while the 3rd semester incorporates a 4 credit course on Life Skills. This course is being offered by Hiranya Chandra Bhuyan School of Science and Technology in close association with the faculty of other Schools. Similarly, courses on environmental studies, digital literacy, organic farming etc. are also offered in the baskets of VAC and SEC.

The Centre for Internal Quality Assurance (CIQA) of the University has organised a number of meetings and workshops regarding the implementation of NEP 2020 in the context of ODL. With all the inputs, the Committee on Courses (CCS) and the Schools of Studies, involving outside subject experts drawn from reputed Universities of the region have designed the Programmes and the detail syllabi. The updated and revised syllabus was placed in the Schools of Studies and after getting due recommendation from it subsequently the syllabus was approved in the Academic Council of the University. This Programme Project Report (PPR) on Four Year UG Programme on Bachelor of Computer Applications under the Discipline of Computer Science of the Hiranya Chandra Bhuyan School of Science and Technology of KKHSOU is an outcome of this process.

2. PROGRAMME MISSION AND OBJECTIVES

2.1 Mission and Vision of K. K. Handiqui State Open University

i. The motto of the university is to make education beyond barriers and provide the educational opportunity to the unreached irrespective of gender, socio-economic status, geographical location, physical disabilities and gender.
ii. It will also provide education to the housewives, semi-literate, unemployed youth, jail inmates as well as highly educated people.
iii. This university provides the opportunities of higher education to those who remain deprived of higher education for other numerous reasons.
iv. The mission and vision of the university is to enhance the capabilities of learners, particularly women learners, who want to get empowered with higher order of required

education and necessary professional skills.

v. To provide social justice to all the stakeholders is the prime focus of the university.

2.2 Mission and Objectives of the Programme

The Bachelor of Computer Applications (BCA) is a four-year degree program under the semester system, designed to expose learners to various areas of computer applications, including the latest developments in information technology. The program's mission is to provide a pathway for learners who have completed their 10+2 education and are interested in pursuing a career in IT.

The BCA program consists courses that includes practical training, seminars, and project work, to provide learners with a comprehensive understanding of computer applications and prepare them for the IT industry.

The main objectives of the BCA programme are:

i. To provide learners with a comprehensive understanding of computer systems, software development, and programming languages.
ii. To equip learners with the skills and knowledge necessary to design, develop, and implement computer applications and systems.
iii. To develop learners' analytical, problem-solving, and critical thinking skills, which are essential in the field of computer applications.
iv. To provide learners with hands-on experience in using industry-standard software tools and technologies.
v. To prepare learners for careers in software development, database administration, system administration, network administration, and other related fields.
vi. To prepare learners for further study and research in computer science, information technology or related disciplines.

Overall, the BCA program aims to provide learners with a well-rounded education in computer science and its applications, preparing them for successful careers in the technology industry.

2.3 Graduate Attributes

The following are the graduate attributes for the BCA programme:

- **Critical thinking and problem solving ability:** Ability to use critical thinking and efficient problem solving skills in solving computer science and real world problems.
- **Excellence in academic subjects:** Capable of demonstrating comprehensive

knowledge and understanding of major concept areas of computer applications like programming, data structures, algorithms, operating systems, computer architecture and networks.

- **Proficiency in technical areas:** Ability to use proficiency in technical areas to easily navigate different technologies and tools related to computers.
- **Leadership and team work:** Capability to both work and lead in teams to solve problems.
- **Knowledge of emerging technical areas:** Capability of learning new skills as required in various new emerging technical areas.
- **Good communication skills:** Ability to convey complex technical information relating to computer applications in a clear and concise manner in writing and oral skills.
- **Ethical and responsible use of computer application skills:** Avoiding use of computers and new technologies in any unethical manner.

2.4 Qualification Descriptors

The qualification descriptors for the BCA programme are as follows:

- Demonstrate skills in the academic field of computer science including a critical understanding of the latest developments in the area of computer applications and information technology;
- Demonstrate comprehensive knowledge on computer science core subject areas like programming, data structures, operating systems, computer architecture and networks;
- Demonstrate programming skills in languages like C, C++, Python etc. to solve computer science and real world problems;
- Use knowledge, understanding and technical skills in solving technical issues related to computers and its applications;
- Communicate complex technical information and results of complex problems in the area of computer applications and IT;
- Address one's own learning needs related to current and new emerging areas of computer science;
- Demonstrate IT skills that are relevant to some of the IT sector related jobs and other employment opportunities.

3. RELEVANCE OF THE PROGRAMME WITH KKHSOU'S MISSION AND GOALS

Computer Science is considered one of the best career options, not only in India, but also outside the country. There are bright career prospects for computer science professionals or software professionals in the context of the recent scenario. With the opening of huge software and IT companies in India, the job opportunities for trained professionals have increased considerably. India is known to be a leader in the software and IT sector. Computer science graduates find job opportunities in a variety of environments in academia, research, industry, government, private, business organizations, and so on. They are involved in analyzing problems for solutions, formulating and testing, using advanced communications or multi-media equipment, or working in teams for software product development. The software and IT companies are the major employers of computer science graduates. They offer the best packages to the young graduates which are unmatched with other branches of science.

Some of the popular career options for computer science graduates are listed below:

- **Web developer:** Web developer is an exciting career option where learners get to work on interesting projects. Front end designers create the "look and feel" of websites while back-end developers connect the databases and servers with the frontend.
- **Software Testing:** A software tester takes the important responsibility of improving the quality of the application. A tester or quality analyst essentially should have knowledge of the entire software development lifecycle as software testing is done in each phase of the product life cycle, from requirement specifications, coding, to design.
- **Mobile Application Developer:** For professionals with a degree in computer science and programming skills, mobile app development offers a fresh opportunity to embark on a new career. As market demand surges for applications running on iOS, Android or other operating systems that will power the next generation smart devices, IT professionals with skills in Java, Android programming, and native app development are much sought after in the job market.
- **Computer Professional:** A large number of government and private sector organizations are in need of persons with sound knowledge of computer science and BCA graduates can fill up this void perfectly.

The BCA programme will help in producing skilled IT human resources which will be in conformity with KKHSOU's mission and goals.

4. NATURE OF PROSPECTIVE TARGET GROUP OF LEARNERS

The BCA programme is aimed at individuals who have a passion for technology and a desire to pursue a career in the field of computer science. The programme is designed for 10+2 or equivalent pass outs who wish to enhance their knowledge and skills in the field of information technology. The target group for this programme includes:

a) 10+2 pass outs who want to pursue degree in the field of computer applications and acquire the necessary skills to compete in the job market.
b) Individuals who want to upgrade their skills in areas such as programming, database management, networks and system administration.
c) Individuals who want to gain specialized knowledge in the field of web application development.
d) Individuals who want to update the knowledge of in new emerging areas like artificial intelligence and machine learning, full stack development, data mining and image processing.
e) Individuals who want to pursue research in the field of computer science and information technology.
f) Individuals with non-technical backgrounds who want to gain a better understanding of computer applications and its potential impact on business operations.

5. APPROPRIATENESS OF THE PROGRAMME TO BE CONDUCTED IN ODL MODE TO ACQUIRE SPECIFIC SKILLS AND COMPETENCE

BCA programme can be appropriate to be conducted in Open and Distance Learning (ODL) mode, depending on the specific skills and competencies that the program aims to develop, the quality of the ODL delivery mode, and the level of support provided to learners.

Here are some of the factors that can make BCA programme suitable for ODL delivery mode:

a) Flexibility: ODL mode allows learners to study at their own pace and schedule. This flexibility can be especially beneficial for working professionals and homemakers who need to balance their studies with their work and personal life.

b) Accessibility: ODL mode enables learners to access educational resources and instruction from anywhere in the world, as long as they have an internet connection. This can increase the accessibility of the programme to learners who may not have the opportunity to attend a traditional, on-campus programme.

c) Cost-effectiveness: ODL mode can be more cost-effective than traditional, on-campus

programme, as learners do not have to incur expenses related to travel, accommodation, and other on-campus expenses.

d) Personalization: ODL mode allows learners to customize their learning experience to suit their needs, preferences, and learning styles. Learners can choose the specific courses or modules that align with their career goals and interests.

Overall, BCA programme can be appropriate for ODL delivery mode if the programme is well-designed and delivered, and if learners are provided with the necessary support to succeed in an ODL environment.

6. INSTRUCTIONAL DESIGN

6.1 Curriculum Design

The revised Bachelor of Computer Applications program has been so designed that it meets the standards of NEP 2020 and the UGC ODL Regulations 2020. With the help of experts in the subject from other reputed universities in the region, the contents of the syllabus are updated. While preparing the syllabi, NEP-2020 Documents, UGC Distance and Online Education Regulations 2020, UGC LOCF Curricular Framework, Academic Integrity Regulation 2018, UGC-definitions-of-Degrees-July-2014, syllabi of other Universities and recommendations of Madhava Menon Committee have been consulted.

6.2 Programme Structure and Duration of the Programme:

The 4-year BCA programme has been designed according to **NEP 2020** with multiple exit options. A learner can earn a Certificate in Computer Applications after successfully completing two semesters. Following successful completion of four semesters, a learner may opt for a Diploma in Computer Applications. After successfully completing six semesters, a learner can receive a UG degree in Computer Applications. And after successful completion of eight semesters, a learner can opt for UG Degree Honours/Research in Computer Applications. Minimum duration of the programme is one year for a certificate programme and maximum duration is eight years for the UG programme with Honours. In case, a learner is not able to qualify a course in the first attempt, he/she will have to qualify in the particular course within the next four attempts, subject to maximum duration of the study. A detailed outline of the program structure can be found in ***Annexure I***. The detailed course wise syllabus of the BCA programme is given in ***Annexure II.***

6.3 Definition of Credit Hours

As per UGC ODL Regulations 2020, the University follows the system of assigning 30 hours

of study per credit of a course. Thus, following this norm, a 4 credit course constitutes a total of 120 hours of study. Out of the total credit hours, a minimum of 10 percent, i.e., minimum 12 hours of counselling per course are offered to learners at their respective study centres or through centralized online counselling.

6.4 Faculty and Support Staff Requirement

The Discipline of Computer Science of HCB School of Science and Technology of KKHSOU currently has five full time faculty members (one Associate Professor and four Assistant Professors). As the BCA Programme has components of General English, MIL, Environmental Studies, Cyber Security, Office Management etc. it requires interdisciplinary and multidisciplinary effort. Therefore, support of faculties from different schools of the University has been mobilized for design and delivery of the BCA Programme. Moreover, supports for required counselling to the learners will be provided through a network of well-qualified and experienced counsellors at their respective study centres.

A list of faculty members and course coordinators of the university against courses (DSC, Minor and Cyber Security) of the BCA programme is presented in ***Annexure IV.*** The Discipline of Computer Science under the Hiranya Chandra Bhuyan School of Science and Technology of the University has the following teaching staffs:

Sl. No.	Name	Designation	Qualification
1	Dr. Ridip Dev Choudhury	Director (i/c), Hiranya Chandra Bhuyan School of Science and Technology, Associate Professor	M.Sc., Ph.D.
2	Dr. Tapashi Kashyap Das	Assistant Professor	M.Sc., Ph.D., PGDDE
3	Dr. Sruti Sruba Bharali	Assistant Professor	M. Tech, Ph.D., UGC NET Qualified
4	Dr. Nabankur Pathak	Assistant Professor	M.Sc., Ph.D.
5	Mr. Harekrishna Deka	Assistant Professor	M.Sc., SLET Qualified

6.5 Instructional Delivery Mechanism

The Self Learning Materials have been prepared keeping in mind the requirements of instructional design. Particular attention has been given so that the basic three domains of knowledge, viz., the behavioural domain, cognitive domain, and constructive domain can be addressed. In general, the university offers printed SLMs and the same in audio-visual formats. Apart from that, plans are being made to deliver the BCA Programme through LMS. The LMS would consist of four quadrants: video lectures, downloadable/printable reading material, self-assessment tests through tests and quizzes, and an online discussion forum for clarifying questions. As majority of the learners are from rural areas and disadvantaged groups, attempts are made to make the SLMs easy to read and easy to understand with the following major components:

a) *Learning Objectives* (major objectives of the Unit are stated)
b) *Introduction* (linkage with previous Unit as may be applicable and general introduction of the content is provided)
c) *Check Your Progress* (generally after every section CYP is provided to learners to gauge their understanding)
d) *Answers to Check Your Progress* (CYP answers are provided at the end of the Unit)
e) *Activity/Activities* (activities for enhancing learners' critical outlook is included in SLM)
f) *Let us Know* (Depending on the necessity some important information related to the content is provided in a box)
g) *Let us Sum Up* (pin pointed summary of the Unit is given)
h) *Further Reading* (this section has been incorporated for those learners who are interested in advance knowledge of the content)
i) *Model Questions* (Different types of questions have been provided in the unit).

6.6 Identification of Media–print, Audio or Video, Online, Computer Aided

All learners are provided with Self Learning Materials, which are comprehensive in terms of the contents of the syllabus. These learning resources are prepared with the help of resource persons across the state/country. Senior/Retired Professors/Associate Professors/Assistant Professors from different Universities/Colleges are engaged as SLM writers and Content Editors. In addition, certain topics are also covered through community radio programmes

broadcast through the 90.0 FM ***Jnan Taranga*** Community Service Station of the University. Most of the audio-video programmes are accessible online through YouTube videos.

6.7 Learner Support Services

The student support services available in the University would be extended to the learners of this BCA Programme. All these support services would help the learners to imbibe the required knowledge and skills; to seek avenues in employment; to go for higher studies; and to know about the subject in an in depth manner. Learner support services include the following among others.

a) **KKHSOU City Campus:** The KKHSOU City Campus at Guwahati organises training for coordinators, counsellors, and other functionaries. The City centre provides a venue for learners and academic counsellors to interact on a particular subject matter. Responsibility for Admission, distribution of SLMs and Examination also lies with City Campus. Online counselling for all learners of all semesters of all programmes are centrally organised from city campus.

b) **Regional Centres:** The Regional centre of KKHSOU at Jorhat in upper Assam provides training for coordinators, counsellors, and other functionaries. The centre provides a venue for learners and academic counsellors to interact about a particular subject matter. Responsibility for Admission, distribution of SLMs and Examination in select districts of upper Assam also lies with Regional Centres. Establishment of some other regional centres is in the pipeline.

c) **Study Centres:** Study centres are the backbone of an open and distance learning institution. On behalf of the university, the study centres cater to the various requirements of learners, viz. Admissions-related information, delivering Self Learning Materials, conducting counselling sessions, distributing assignments and evaluating them, conducting term-end exams, etc. The study centers throughout the state handle these affairs on behalf of the University.

d) **Pre-enrollment Counselling:** In cooperation with study centres, the university provides pre-enrollment counselling for all the programs through online and offline modes. It provides basic knowledge of the programs, counselling sessions, etc. Moreover, programme specific pre-enrollment counselling is also organised.

e) **Siksharthi Mitra:** A few employees of the University have been engaged as Siksharthi Mitra in order to provide better technical support and assistance to the candidates during online admission process.

f) **Learners' Charter:** The University has brought out a Learners' Charter pronouncing the basic rights and responsibilities of its learners. In the Induction Programmes at the Study Centres, the learners are sensitized about this Charter.

(http://kkhsou.in/web_new/viewDocuumentPdf.php?pdf=pdf/student/Standee%204%20Assamese-converted(1).pdf&q=Learners%27%20Charter)

g) **Handbook/SOP:** The University has brought out a Handbook for the Study Centres and a Standard Operating System (SOP) of Examination.

http://kkhsou.in/web_new/ugc-info-2018/SOP%201-32.pdf

h) **Audio CDs for Visually Impaired Learners:** The visually impaired learners are provided with free audio SLMs in CDs to overcome their difficulties of learning. The University has installed Braille printers for this category of special learners in the University SLM branch.

i) **Face-to-face/Online Ticketing/Complaint System:** Learners' queries are attended in the face-to face mode and digital mode as well in a continuous way, through telephone, SMS and emails. There is a dedicated online portal through which the queries received automatically move to concerned department for solving the same. Once the problem is solved, the learner is informed by SMS and email.

j) **Face-to-face and Walk-in Counselling: BCA** Programme learners will receive face-to-face counselling from study centers. The University also provides face-to-face counselling/walk-in-counselling to learners at the specially maintained city learner support center located at the city campus on Sundays or weekdays.

k) **ICT Support:** ICT support is a major component of any ODL system of education. Some of the ICT-based support systems provided by the university, which can be availed by the learners of BCA Programme are listed below:

- **Website:** The University has developed a full-fledged official website www.kkhsou.in for learners and the general public. The website has a dedicated Learners' Corner (http://kkhsou.in/web_new/learner_corner.php) that contains exhaustive information and links to useful resources which is accessible to the vast learner population. Furthermore, the Website links to social-networking sites like Facebook where learners, faculty members, and stakeholders can interact. Additionally, the site offers a tailored search by district or program. And most of the audio-visual programmes are accessible

online through YouTube videos (web link: https://www.youtube.com/user/kkhsou)

- **Community Radio Service**: Jnan Taranga (90.0 MHz) is the first Community Radio station in the North Eastern part of the country administered by the University. Community Radio, being a platform for the community for taking up community issues, is also a platform for broadcasting educational programmes. This includes debates, discussions, and talk shows.

  Links: http://jnantaranga.kkhsou.in/index.php

- **e-Bidya:** As part of its ongoing attempts to enhance student learning, the university has developed a Learning Management System (LMS) portal called e-Bidya using open source MOODLE which can be accessed via https://www.lmskkhsou.in/web/ .The site allows learners to access e-resources 24 X 7, regardless of where they are in relation to the particular programme they are enrolled in. Learners can interact with experts in the discussion forum. Learners can experience the benefits of online learning through their mobile devices as well. The same facilities are being imparted for the BCA programme as well.

- **Open Access Journals Search Engine (OAJSE):** The OAJSE (www.oajse.com) can be used to browse and search 4,775 Open Access Journals from the rest of the World excluding India, 532 journals from India, and 32 Indian Open Access Indian Repositories. It provides all pertinent information about KKHSOU's central library, including access to electronic resources, the Online Public Access Catalogue (OPAC), and subscribed journals and databases. It also provides an email alert service (current awareness service) to learners and is linked with major social networks including Facebook and Twitter.

- **KKHSOU Mobile App:** The university has developed a mobile application "KKHSOU" that allows students to access the university website 24x7. Download Link: https://play.google.com/store/apps/details?id=soft.bdeka.kkhsou.androidapp&hl=en_IN

- **SMS Alert Facility:** The University has implemented an SMS alert system for learners which notify of university news, events, and learner-related information.
- **E-Mentoring Groups:** The e-mentoring system, which utilizes the Telegram App/WhatsApp, helps learners acquire all the characteristics of open and distance learners, so that they can continue their studies with self-confidence, self-esteem, morale, and a feeling of identity. It is the main objective of this initiative to help learners minimize personal difficulties and identify the obstacles they face due to the diverse needs and backgrounds they have. During this process, they are also guided to develop appropriate and suitable learning strategies for overcoming all these difficulties and problems.
- **E-mail:** Learners can also write emails to any officials/faculty members of the University. For this a general email ID: info@kkhsou.in has been created. Concerns raised through email to this email address are addressed by the University's relevant officials or faculty members. Apart from that, the email and phone numbers of all faculty members are available on the website and Information Brochure. Any learners can write directly to them as well.
- **Online Counselling:** The University's faculty conducts online counselling sessions through different online platform like Zoom, Google Meet, Cisco Webex and Facebook etc. in addition to regular counseling sessions in study centers. It provides direct interaction of learners with the regular faculty members of the University which creates a greater sense of inclusion and reduces feelings of isolation by offering personal care and guidance to all learners.
- **KKHSOU in Social Media:** KKHSOU has incorporated social media sites like Facebook pages, Whatsapp group, Twitter Account (https://twitter.com/KKHSOU1?s=09) that enables sharing and interaction with the students' community. Official Facebook Group of KKHSOU can be reached at https://www.facebook.com/groups/272636986264210/

7. PROCEDURE FOR ADMISSION, CURRICULUM TRANSACTION AND EVALUATION

7.1 Procedure for Admission

i. **Minimum Qualification:** The eligibility criteria for the BCA programme to be offered by KKHSOU is 10+2 or equivalent.

Lateral Entry:

- A candidate having UG Certificate of BCA Four Year Programme may be allowed lateral entry into the 3rd semester of the Four Year BCA programme.
- A candidate having UG Diploma of BCA Four Year Programme may be allowed lateral entry into the 5th semester of the Four Year BCA programme.
- A candidate having UG Degree of BCA Four Year Programme may be allowed lateral entry into the 7th semester of the Four Year BCA programme.

ii. **Online Admission:** Admission to this BCA programme would be offered by KKHSOU through online in the University website: www.kkhsou.in. A prospective learner may take admission as per his/her choice in KKHSOU City Study Centre, Khanapara, or any other recognized study centre for the BCA programme in the State of Assam. A learner is to submit all relevant documents for admission through the online admission portal. The course fee is to be paid through credit card/ debit card/ net banking or UPI- Bharat QR, BHIM, PhonePe, GPay, Paytm, WhatsApp and other UPI. After admission is done, a unique Registration / Enrollment Number is automatically generated which will have to be used for future communications with the University. Based on his/her choice, and operational conveniences, a learner shall be assigned to a particular study centre for availing of dedicated services and counseling/tutoring facilities. The newly admitted learners will receive the SLMs through a dedicated study centre and in certain cases SLMs may be sent to the learners' home address also. e-SLMs are also available in the University website. The University has a Credit Transfer Policy which is being revised to facilitate course exemption in order to promote dual degree.

iii. **Refusal/Cancellation of Admission:** At the time of admission the candidate must submit a declaration that he/she is not pursuing more than two degree programmes under KKHSOU/any other recognised University or Institution simultaneously. If any false declaration is detected at any stage, his/her admission/mark sheets/ certificates may be cancelled by the University.

iv. **Continuous Admission:** By paying the necessary fees, a learner can obtain admission to the next semester once a particular semester is completed. Admission to the subsequent semester is not determined by the results of the previous semester. One may take admission in the next semester even without appearing in the previous semester examination. The admission period should be continuous from the date of completion of the previous semester's exams until 60 days after the start date. Incomplete exams, including back papers, will be allowed to be taken up when announcements of examination results are made. Learners are advised to regularly visit the University's website (www.kkhsou.in) and maintain regular contact with their allotted study centres.

v. **Pursuing Two Academic Programmes Simultaneously:** As per UGC guidelines dated April 2022 a learner can pursue two academic programmes simultaneously, one in full time physical mode and another in Open and Distance Learning (ODL)/Online mode; or up to two ODL/Online programmes.

vi. **Fee Waiver for Differently Able Persons (DIVYANGJAN)**: The fee waiver will be applicable for differently able learners in all semesters of the programme where he/she has enrolled. Such learners must submit 'Form no. IV' issued by the Social Welfare Department or Disability and a copy of the Certificate issued by the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Govt. of India. The forms/certificates of differently able learners which are verified by the Social Welfare Department, Govt. of Assam will be allowed the fee waiver for the eligible learners of this BCA Programme also.

vii. **Economically Weaker Section (EWS):** The learners applying for admissions in EWS category shall submit EWS documents as per the latest Govt. of Assam guidelines.

viii. **Fee Structure:** The fee structure of the BCA programme would have a break-up across semesters of the programmes. The fee is inclusive of Enrollment fees, Course fee, Examination fee, Exam centre fee and Mark-sheet fee. Currently the fee charged for one semester of this BCA programme is Rs 5000.

ix. **Financial Assistance:** The University offers free education to jail inmates and differently abled learners. At present, the University offers free of cost education to jail inmates in 16 district jails of the state. The University is in the process of including more numbers of Central/District Jails in the coming Academic Session.

7.2 Curriculum Transaction:

i. **Activity Planner:** There will be an activity planner, which guides the overall academic activities in the BCA programme. This will be released prior to the university's admission schedule. The CIQA office as per UGC guidelines and the office of the Academic Dean would upload the Academic Plan and month wise Academic Calendar. This will enable learners to plan their studies and activities accordingly.

ii. **Self-learning Materials (SLMs):** SLMs are designed in such a way that learners can easily follow them. With the help of subject experts. SLMs are prepared with relevant and up to date information and facts.

iii. **Multimedia Materials:** Apart from printed SLM, the university provides audio-visual learning materials related to course content.

iv. **Induction and Counselling Sessions:** Induction sessions are conducted by university officials and faculty together. Counselling sessions are conducted by the Study Centres. Normally all counselling sessions are scheduled on Sunday. A face-to-face interaction between the learners and the counsellor takes place during the counselling session. This enables learners to clear their doubts with regard to the various courses provided to them. Apart from that, from time to time, online counselling sessions will be provided by the faculties of the University for this BCA Programmes.

v. **Web-based tools:** The University also provide Web Enabled Academic Support Portal through e-Bidya, the Learning management system of KKHSOU available at https://www.lmskkhsou.in/web/ to access the course materials and other learning resources.

7.3 Evaluation

For this BCA Programme the general guidelines of the University will be followed. Vide a resolution of the 33rd Meeting of the Academic Council and the subsequent approval of the Board of Management and as per UGC regulation (04-09-2020) Clause 15, KKHSOU has decided that the Total Marks for Internal (Formative) Assessment will be 30%, and that for Summative Assessment will be maximum 70% i.e. 30 marks and 70 marks out of Total 100 marks. The University has adopted Letter Grades and Grade Points as per UGC Curriculum and Credit Framework for UG Programs 2022. The summative assessment is conducted in those examination centres where the UGC recommended facilities are available. While setting

the Question Papers and evaluating the Answer Sheets, the learning outcomes of the Programme and the Courses would be considered. Examination monitoring is an essential feature in conducting the examination processes. The University appoints Supervisory Officers, Examination Monitoring Officers and Examination Squads on a regular basis for smooth conduct of examinations. Some details of examination processes which would be applicable for this BCA Programme are presented below.

i. **Continuous and Comprehensive Formative Assessment:** Continuous and comprehensive evaluation is an important component of the total assessment process in KKHSOU. There is provision for self-evaluation based on the Self Learning Materials. The University has decided to adopt a mechanism for continuous evaluation of the Learners through a mix of various flexible methods.

Considering the practical limitations of the learners and the difficulty of administering, the University has adopted the formative assessment mechanism with the following in view. The learners are communicated about the details through the university website, official notifications, study centres and social media. The formative assessment has the following break-up:

a. MCQ/Written test/Quiz/Viva etc. = 10 marks
b. Attendance/Participation in the Personal Contact Programmes* = 5 marks
c. HA submission (at study centre) = 10 Marks
d. Participation in Extension activities (Environment related/workshop etc.)/ Additional Home Assignment = 3 marks.
e. Timely submission of Assignment etc. as mentioned in (c) above = 2 marks (Submission after due time = 1 mark; Non-submission =0 mark).

However, for courses with practical component, the distribution will be 50% weightage for theory, 30% weightage for practical and 20% weightage for internal assessment.

The concerned study centres will organize MCQ based test (online/offline) for the learners of that particular study centre and if required they may conduct alternative arrangements like written test/ Viva/Quiz etc. and assess the learners for maximum 10 marks. Assignments for total 13 marks will be administered course-wise comprising three assignments (5 marks + 5 marks + 3 marks) by the concerned discipline of the University asking the learners to submit hard copies to the concerned study centre. Out of the three assignments, one will be closed-

ended assignment directly from the course or SLM (5marks), one will be open-ended assignment i.e. analytical/opinion/view etc. to be answered by the learner based on the course (5 marks), the third one will be on Environmental/Community work (3 marks) related to issues/topics which will be activity based. Concerned study centres will arrange Personal Contact Programmes (Online or Offline) and the learners need to attend the same, as per UGC Guidelines. The learner will be awarded marks by the concerned study centres accordingly as per the breakup given for total 30 marks. The coordinators of the study centres will submit the marks after assessments, through the Home Assignment portal of the University.

Seminar/Presentation/Internship/Project Report/ Community Engagement: A learner has to prepare a project report on a particular topic under the guidance of a professionally qualified supervisor/guide in Semester VIII of the BCA Programme. In this course, learners should take up a problem related to the subject area. A detailed guideline is available on the university website. The link is http://kkhsou.in/web_new/guidelines-download.php

8. REQUIREMENT OF LABORATORY SUPPORT AND LIBRARY RESOURCES

8.1 Laboratory Support

The study centres of KKHSOU offering BCA programme must have a well quipped computer laboratory. There should be at least 10 (ten) computers along with sufficient UPS backup facility and high-speed internet connection. Depending upon the enrolment, the number of computers may be more then 10. The suitable learner to computer ratio should 1:1. The SLM itself contains instructions on how to proceed with laboratory work.

Currently, at the University City Campus located in Resham Nagar, Khanapara, Guwahati, there are two computer laboratories available for conducting practical classes. The first laboratory consists of 25 computers, and the second laboratory consists of 30 computers. Both laboratories are equipped with high-configuration desktop computers with 75 inches high-resolution LED TVs and LCD projectors with two 10 KV UPS.

Laboratory courses are an integral component of the BCA programme. Importance has been given to the utility of the practical sessions with respect to development of problem solving skills and industry oriented applications. Laboratory classes are conducted at the Study Centre and online laboratory counselling sessions are also held. For in-service learners, laboratory classes are conducted on Sundays.

8.2 Library Resources

Library services are offered to the learners of KKHSOU through physical library facilities in its recognized study centres and also through the central library, set up by the University at its city campus. Reference books are suggested by the faculty of the respective Disciplines/Schools of the University and also by the SLM writers. The Central Library at KKHSOU has a sizeable repository of relevant reference books and textbooks relating to the BCA Programme. The central library KKHSOU is well-stocked with 19135 print books, 36 print journals on various disciplines and 8 Newspapers (as on 28-02-2023). The books available at the Central Library are quite helpful not only for the learners, but also for the faculty members, SLM contributors and the content editors as well.

Apart from the print resources, a good number of electronic resources comprising e-journals, online databases, gateway portal to e-journals are all made accessible to the learners. The learners are communicated once the subscriptions are made to the programme specific journals. The library is fully computerized with an ILS (Integrated Library System) and also equipped with RFID (Radio-Frequency Identification Technology). All the learners of the University including the learners of the BCA Programme can access the webpage of the University library at their own time and convenience (http://library.kkhsou.in/). Moreover, the learners can take advantage of the facilities of the Digital Library (http://dlkkhsou.inflibnet.ac.in/). The digital library provides an online platform for collecting, preserving and disseminating the teaching, learning and intellectual output of the University to the global community including the KKHSOU learners. Beyond the physical boundary the library of KKHSOU has been maintained a web catalogue (http://opac.kkhsou.ac.in/) to facilitate the learners to browse library collection online.

The University has an OER Policy (http://dlkkhsou.inflibnet.ac.in:8080/jspui/handle/123456789/831) which spells out the learning material released by the university in physical or digital format. KKHSOU has signed Content Partner Agreement with National Digital Library of India to share its Digital Resources. The main objective of NDLI is to integrate several national and international digital libraries in one single web-portal. The learners community of KKHSOU can avail the services through a single-window (https://ndl.iitkgp.ac.in/).

The OAJSE (www.oajse.com) can be used to browse and search 4,775 Open Access Journals from the rest of the World excluding India, 532 journals from India, and 32 Indian Open Access Indian Repositories. It provides all pertinent information about KKHSOU's central

library, including access to electronic resources, the Online Public Access Catalogue (OPAC), and subscribed journals and databases. It also provides an email alert service (current awareness service) to learners and is linked with major social networks including Facebook and Twitter. Online subscriptions of reputed journals and databases are regularly made. The learners would be communicated once the subscriptions are made to the programme specific journals.

9. COST ESTIMATE OF THE PROGRAMME AND PROVISIONS

The office of the Finance Officer of KKHSOU keeps all the records of finances regarding print of SLMs, honorarium paid to the members of the Committee on Courses, honorarium paid to Content Writers, Content Editors, Language Editors, Translators, Proof Readers and also the expenditure related with organizing counsellors' workshops, meeting of the co-ordinators of the study centres etc. Moreover, the finance office also maintains records of purchase of computers, online space, books, journals etc. The accounts are maintained as per the laid down procedures of government. Regarding the cost of programme development, programme delivery, and programme maintenance, the finance office conducted an exercise based on historical costing method to arrive at indicative figures of cost. The findings are presented below in respect of the BCA Programme.

9.1 Programme Development Cost:

a. *SLM Development Cost for Under Graduate programme*: Rs. 6,250/- per Unit. A course normally has 14 Units. The discipline specific courses will be explicitly attributed to this programme. The rest can be apportioned depending on the learners' enrolment and number of units to be printed.

b. *Printing Cost per Unit of SLM*: Rs. 69. However, this also depends on the print number as scale related advantage of cost is normally availed.

9.2 Programme Delivery Cost:

The SLMs prepared have to be delivered to the learners and various study centres located at the far flung remote areas. On an average, the University delivers about 2.2 KGs of study materials per student. The cost of delivery of 1 KG of such material is Rs.60. Accordingly, depending upon the number of candidates; the cost for the BCA Programme will be provisioned by the University. The office of the Finance Officer has calculated the delivery cost of SLM per student at Rs. 132. Moreover, there will be apportionable expenditures on providing LMS based services for which a detailed exercise will be required.

9.3 Programme Maintenance Cost:

The University will keep financial provision for organizing stake holders' meetings, counselling workshops etc. as per the Academic Plan and Academic Calendar approved by the Academic Council of the University. The workshops conducted by the University will not only benefit the learners of the programme on BCA, but will also benefit the learners of other programmes. The University will also bear the cost of organizing the meetings of Committee on Courses, School of Studies, and Academic Council etc. and also for supply of additional study materials if required for improving the quality of the programme. Moreover, the University will keep on investing in developing the IT infrastructure so that the learners can benefit from the ICT enabled programme. The cost calculated by the office of Finance Officer as regards maintenance of Arts programmes- is Rs. 650.00.

The figures as indicated above will be applicable for the BCA Programme of the University. The University will keep adequate financial provision for development, delivery, and maintenance of the programme as presented in the Programme Project Report.

10. QUALITY ASSURANCE MECHANISM AND EXPECTED PROGRAMME OUTCOMES

Quality Assurance Mechanism: With regard to quality assurance of all the Programmes of the University including the Programme on Bachelor of Computer Application, the University is involved in the following activities:

The programme design and structure is decided upon after a series of discussions and deliberations with a team of a few carefully chosen subject experts, who are mostly eminent scholars and professionals from the reputed institutions of higher education. Formed with due approval from the University authority, this Committee on Courses is helped by the in-house discipline and School faculties while preparing the framework of the programme. For implementation of NEP 2020, the University has networked with IGNOU, State Open Universities in India and other Universities in Assam by organizing workshops and participating in various meetings and seminars. Inputs from these discussions were used as quality benchmarks in designing the academic programmes.

The university has a SLM Policy which is followed in development of SLM. SLM Audit is a regular feature of the University which is conducted by CIQA. The course material writers and content editors are mostly in academics from reputed higher educational institutions.

SLMs are distributed through a well laid down mechanism to all the learners by a mix of modes. Moreover, eSLM has been made available. Like the SLM Policy, the University has adopted University wide approaches for development of policies, Strategic Action Plan and their implementation.

CIQA takes care of the following among others to enhance the quality of the various facets of the University:

- Counsellors' workshops
- Stakeholders' meetings
- Feedback responses from the learners from various programmes
- SLM Audit

In order to keep the programme on BCA updated, the programme would be revised and necessary changes would be incorporated for the benefit of the learners, based on the inputs received from the mechanism as mentioned above. Learners' and stakeholders' feedback is regularly collected and based on that, remedial measures and improvement mechanisms are worked out. (http://kkhsou.in/web_new/learner_feedback_all.php)

Specific outcomes of the BCA Programme are stated below.

i. Knowledge and skills: Graduates will have a thorough understanding of computer systems, software development, and programming languages.
ii. Problem-solving skills: Graduates will be able to apply their knowledge and skills to analyze, design, and develop solutions for complex computing problems.
iii. Communication skills: Graduates will be able to effectively communicate their ideas and solutions to others, both verbally and in writing.
iv. Teamwork: Graduates will have the ability to work effectively in teams, collaborating with others to develop software applications.
v. Ethics and professionalism: Graduates will have a solid understanding of ethical and professional standards in the computing industry.
vi. Life-long learning: Graduates will be prepared to continue their education and stay up-to-date with the latest developments in the computing industry throughout their careers.

ANNEXURE I

Krishna Kanta Handiqui State Open University
Course Curriculum of BCA Programme
Credit Distribution for Bachelor of Computer Application

Sl. No.	Nature of Courses	Total no. of Courses	Credit	Total Credits
1	DSC (Discipline Specific Core)	20	4	80
2	Minor (For other Discipline)	8	4	32
3	IDC (Inter-Disciplinary Course)	3	3	9
4	AEC (Ability Enhancement Course)	4	3+3+4+4	14
5	VAC (Value Added Course)	2	3+3	6
6	SEC (Skills Enhancement Courses)	4	3+3+4+4	14
7	Seminar	1	4	4
8	Project	1	12	12
	Total	**44**		**171**

Course Distribution for Bachelor of Computer Applications

Semester	DSC	Minor (For other Discipline)	IDC	AEC	VAC	SEC	Project/ Dissertation / Seminar	Semester wise credits
I	DSC 1	Minor 1	IDC 01	AEC 01	VAC 01	SEC 01		20
II	DSC 2	Minor 2	IDC 02	AEC 02	VAC 02	SEC 02		20
III	DSC 3, DSC 4	Minor 3	IDC 03	AEC 03		SEC 03		23
IV	DSC 5, DSC 6, DSC 7	Minor 4		AEC 04				20
V	DSC 8, DSC 9, DSC 10, DSC 11	Minor 5						20
VI	DSC 12, DSC 13, DSC 14, DSC 15	Minor 6						20
VII	DSC 16, DSC 17, DSC 18	Minor 7				SEC 04	Seminar	24
VIII	DSC 19, DSC 20	Minor 8					Project	24
Total Credits	**80**	**32**	**9**	**14**	**6**	**14**	**16**	**171**

Semester-wise Course and Credit Distribution of BCA

Semester	DSC	Minor (for other Discipline)	IDC	AEC	VAC	SEC	Project/ Seminar	Total Credit
I	DSC 1: Computer Fundamentals and PC Software	Minor 1: Computer Fundamentals	IDC 01	AEC 01 (3)	VAC 01 (3)	SEC 01 (3)		**20**
II	DSC 2: Digital Techniques	Minor 2: Fundamentals of PC Software	IDC 02	AEC 02 (3)	VAC 02 (3)	SEC 02 (3)		**20**
Exit 1	**UG Certificate Programme**							***40***
III	DSC 3: Programming in C DSC 4: Computer Organization and Architecture	Minor 3: Fundamentals of Database Management Systems	IDC 03	AEC 03 (4)		SEC 03 (4)		**23**
IV	DSC 5: Data Structure through C Language DSC 6: Object Oriented Programming through C++ DSC 7: Data Communication and Computer Network	Minor 4: Open Source Software		AEC 04 (4)				**20**
Exit 2	**UG Diploma Programme**							***83***
V	DSC 8: Database Management Systems DSC 9: Operating System DSC 10: Mobile Application Development DSC 11: Linux System Administration	Minor 5: Fundamentals of Web Technology						**20**
VI	DSC 12: Computer Graphics DSC 13: Software Engineering DSC 14: Web Technology DSC 15: Introduction to Python Programming	Minor 6: Digital Marketing						**20**
Exit 3	**UG Degree Programme**							***123***
VII	DSC 16: Full Stack Development DSC 17: Introduction to Image Processing DSC 18: Data Mining and Data Warehousing	Minor 7: Digital Fluency				SEC 04 (4)	Seminar (4)	**24**
VIII	DSC 19: Open Source Software DSC 20: Fundamentals of Artificial Intelligence and Machine Learning	Minor 8: Fundamentals of Python Programming					Project (12)	**24**
Exit 4	**UG Degree Honours/Research Programme**							
Total Credit	80	32	9	14	6	14	16	**171**

Marks Distribution of Courses for Bachelor of Computer Applications

Sem.	Course	Whether DSC/Minor/ IDC/AEC/ VAC/SEC	Marks	Credit
1st	DSC 1: Computer Fundamentals and PC Software	DSC	20F+30P+50S	4
	Minor 1: Computer Fundamentals	Minor	30F+70S	4
	IDC 01	IDC		3
	AEC 01	AEC		3
	VAC 01	VAC		3
	SEC 01	SEC		3
2nd	DSC 2: Digital Techniques	DSC	30F+70S	4
	Minor 2: Fundamentals of PC Software	Minor	20F+30P+50S	4
	IDC 02	IDC		3
	AEC 02	AEC		3
	VAC 02	VAC		3
	SEC 02	SEC		3
3rd	DSC 3: Programming in C	DSC	20F+30P+50S	4
	DSC 4: Computer Organization and Architecture	DSC	30F+70S	4
	Minor 3: Fundamentals of Database Management Systems	Minor	20F+30P+50S	4
	IDC 03	IDC		3
	AEC 03	AEC		4
	SEC 03	SEC	30F+70S	4
4th	DSC 5: Data Structure through C Language	DSC	20F+30P+50S	4
	DSC 6: Object Oriented Programming through C++	DSC	20F+30P+50S	4
	DSC 7: Data Communication and Computer Network	DSC	30F+70S	4
	Minor 4: Open Source Software	Minor	20F+30P+50S	4
	AEC 04	AEC		4
5th	DSC 8: Database Management Systems	DSC	20F+30P+50S	4
	DSC 9: Operating System	DSC	30F+70S	4
	DSC 10: Mobile Application Development	DSC	20F+30P+50S	4
	DSC 11: Linux System Administration	DSC	30F+70S	4
	Minor 5: Fundamentals of Web Technology	Minor	20F+30P+50S	4
6th	DSC 12: Computer Graphics	DSC	30F+70S	4
	DSC 13: Software Engineering	DSC	30F+70S	4
	DSC 14: Web Technology	DSC	20F+30P+50S	4
	DSC 15: Introduction to Python Programming	DSC	20F+30P+50S	4
	Minor 6: Digital Marketing	Minor	30F+70S	4
7th	DSC 16: Full Stack Development	DSC	20F+30P+50S	4
	DSC 17: Introduction to Image Processing	DSC	20F+30P+50S	4
	DSC 18: Data Mining and Data Warehousing	DSC	30F+70S	4
	Minor 7: Digital Fluency	Minor	20F+30P+50S	4
	SEC 04	SEC	100	4
	Seminar	Seminar/ Presentation	100	4
8th	DSC 19: Open Source Software	DSC	20F+30P+50S	4
	DSC 20: Fundamentals of Artificial Intelligence and	DSC	30F+70S	4

	Machine Learning			
	Minor 8: Fundamentals of Python Programming	Minor	20F+30P+50S	4
	Project	Project	200	12
Total:			**4400**	**171**

N.B.:

F = Formative Assessment (i.e. Internal Assessment)
P = Practical
S = Summative Assessment (i.e. End Term Examination)

1 credit = 30 hours of learning

5 credit =30 X 4=120 hours of learning

*** The detailed syllabus of AEC, VAC, IDC, SEC are listed in ANNEXURE V**

Details of Courses Types to be taken by Learners:

Major/ Discipline Specific Core Course (DSC): Learners have to take compulsory 20 (Twenty) Discipline Specific Core Courses of 4 credits each from of his/her own opted discipline.

Minor (For other Discipline) Course: Learners have to take compulsory 8 (Eight) courses of 4 credits each exclusively from one discipline to get a minor specialization in that discipline excluding his/her own discipline. Learners can also opt for compulsory 8 (Eight) courses of 4 credits each from different disciplines excluding his/her own discipline in which case he/she will not get a minor specialization.

Inter-Disciplinary Course (IDC): Learners have to take 3 (Three) Multi-Disciplinary Courses of 3 credits each.

Ability Enhancement Course (AEC): Learners have to take 4 (Four) Ability Enhancement Courses of either 3 or 4 credit which add up to a sum of 14 credits.

Value Added Course (VAC): Learners have to take 2 (Two) Value Added Courses of 3 credit each which add up to a sum of 6 credits.

Skill Enhancement Course (SEC): Learners have to select at least 4 (Four) Skill Enhancement Courses of either 3 or 4 credit which add up to a sum of 14 credits. The SEC courses may be from his/her own discipline or other under-graduate disciplines of the University.

Seminar Presentation/Internship: Learners will have to either give seminar presentation or carry out internship work in an organization to fulfil this criterion.

Field Work/ Project/ Internship: Learners will have to do project work under the guidance of suitable project supervisor, submit a project report and give viva-voce on the project done to fulfil this criterion.

ANNEXURE II

Detailed Course-Wise Syllabus of the BCA Programme

Syllabus of Discipline Specific Core (DSC) Courses

SEMESTER I: COMPUTER FUNDAMENTALS AND PC SOFTWARE

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide learners the knowledge of computers, its different generations and applications
- To provide learners the knowledge of different components of computers and computer memory
- To provide learners the knowledge of using both Microsoft and Linux operating systems
- To familiarize students in usage of LibreOffice Writer, Calc, Impress and Base.

Course Outcome:

On completion of this course, the learners will be able to:

- understand computers, different generation of computers and its applications
- describe the basic components of computers and different parts of computer memory
- use Microsoft operating system and Linux operating system
- use LibreOffice Writer, Calc, Impress and Base

Unit 1: Introduction to Computer

Computer- a Definition; Characteristics of Computer; Generations of Computers; Structural Evolution of Computers; File Structure of Computers; Flynn's Classification of Computer Architecture; Applications of Computer: Advantages of Computer

Unit 2: Basic Features of Computer Classification

Computer Classification based on Operating Principles: Analog Computers, Digital Computers, Hybrid Computers; Computer Classification based on Applications: General Purpose Computers, Special Purpose Computers; Computer Classification based on Size and Capability: Micro Computers, Mini Computers, Mainframe Computers, Super Computers

Unit 3: Basic Components of Computer

Concept of Bit and Byte; Block Diagram of Computer, CPU, ALU, CU; Computer Memory: Primary and Secondary; Input/Output Devices; Buses: Address, Data, Control.

Unit 4: Computer Memory and Storage

Memory Representations; Memory Hierarchy; CPU Registers; Primary Memory: Random Access Memory, Read Only Memory; Secondary Memory; Cache Memory; Virtual Memory

Unit 5: MS Windows Operating System

Introduction to Windows, Components of Windows, Customizing the Desktop, Files and Folders.

Unit 6: LINUX Operating System

Open Source and Free Software, Advantages and Disadvantages of Linux OperatingSystem, Concept of Path, Basic Linux Commands, File Permission, Text Editor vi.

Unit 7: Introduction to LibreOffice

Overview of LibreOffice software suite and its features, Advantages of using LibreOffice as an alternative to proprietary software, Installation and configuration of LibreOffice on different platforms

Unit 8: Getting started with Writer

Launching Writer and creating a new document, Navigating the Writer interface and understanding the different components of the document window, Entering and formatting text, applying font styles, and working with paragraphs, Saving, closing, and opening existing documents in different formats.

Unit 9: Working with templates and styles in Writer

Creating and using document templates for consistent formatting and layout, Creating and modifying paragraph and character styles for consistent text formatting, Managing styles in the Styles and Formatting dialog box.

Unit 10: Formatting documents in Writer

Adding and formatting images, tables, and other objects in a document, Applying advanced formatting options, such as page borders, columns, and page backgrounds, Using Writer's built-in tools for spell-checking, grammar-checking, and language translation.

Unit 11: Introduction to Calc

Overview of Calc and its features as a spreadsheet program, Launching Calc and creating a new spreadsheet, Navigating the Calc interface and understanding the different components of the worksheet window, Entering and formatting data, applying cell formatting, and working with formulas.

Unit 12: Working with functions and formulas in Calc

Using built-in functions and formulas for common calculations in Calc, Creating custom functions and formulas for complex calculations, Using conditional formatting to highlight data based on certain criteria.

Unit 13: Advanced formatting and charting in Calc

Applying advanced formatting options, such as conditional formatting, data validation, and custom number formats, Creating and modifying charts to visualize data in different ways, Using Calc's built-in tools for filtering, sorting, and analyzing data

Unit 14: Introduction to Impress

Overview of Impress and its features as a presentation program, Launching Impress and creating a new presentation, Navigating the Impress interface and understanding the different components of the slide window, Adding and formatting slides, applying transitions, and customizing presentation settings

Unit 15: Working with multimedia and animations in Impress

Adding images, audio, and video to a presentation, Creating and modifying animations to enhance visual effects, Using Impress's built-in tools for recording and rehearsing presentations

Unit 16: Introduction to Base

Overview of Base and its features as a database management tool, Launching Base and creating a new database, Navigating the Base interface and understanding the different components of the database window, creating tables, forms, queries, and reports using Base's built-in tools

References:

1. Sinha, P. K., & Sinha, P. (2010). *Computer fundamentals*. BPB publications.
2. Rajaraman, V., & Adabala, N. (2014). *Fundamentals of computers*. PHI Learning Pvt. Ltd.
3. https://documentation.libreoffice.org/assets/Uploads/Documentation/en/GS7.0/GS70-GettingStarted.pdf

SEMESTER II: DIGITAL TECHNIQUES

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners the knowledge of different numbers systems used in computers
- To provide learners the knowledge of Boolean algebra, logic gates and logic families
- To provide learners the knowledge of arithmetic, sequential and combinational circuits
- To provide learners the knowledge of registers, counters and memory organization.

Course Outcome:

On completion of this course, the learners will be able to:

- describe the different number systems and do binary arithmetic
- understand Boolean algebra, logic gates and logic families
- perform simplification of Boolean expression by Algebraic method and Karnaugh Map
- describe binary arithmetic circuits, sequential circuits and combinational circuits

Unit 1: Introduction to Number Systems

Decimal, Binary, Hexadecimal and Octal number system, Number system conversions

Unit 2: Binary Arithmetic

Complement: r's and (r-1)'s complement, Binary addition, Binary subtraction, Binary Multiplication, Binary division.

Unit 3: Data Representation

Fixed Point representation and Floating point representation

Unit 4: Code Conversion

Gray code, BCD, BCD to Excess-3 code conversion technique, ASCII, EBCDIC

Unit 5: Boolean Algebra

Introduction, Properties, De-Morgan's Theorem, Boolean Identities

Unit 6: Logic Gates

Logic Gates: AND, OR, NOT, NAND, NOR, XOR; Conversion of the logic gates

Unit 7: Floating Point Number Representation

Floating point number, Normalization of floating point, overflow and underflow, detection of overflow, IEEE floating point standard

Unit 8: Logic Families

Introduction, Resistor Transistor Logic(RTL), Integrated Injection logic(IIL), Diode- Transistor Logic(DTL), Emitter-Coupled Logic(ECL), Transistor- Transistor Logic(TTL), TTL-NAND, Tri State Logic, MOS devices, Logic gates with MOSFET's

Unit 9: Reduction Techniques

Boolean Expression, SOP, POS, Conversion of SOP to POS and vice-versa, Simplification of Boolean expression by Algebraic method and Karnaugh Map, Don't care condition

Unit 10: Binary Arithmetic Circuits

Binary Half adder, Full adder, Binary Half subtractor, Full subtractor, 1's complement of n bit adder/subtractor

Unit 11: Combinational circuits

Multiplexer, 4-to-1 multiplexer, Demultiplexer, Encoder, Priority encoder, Decoder,3-to-8 Decoder.

Unit 12: Sequential circuits

Synchronous and Asynchronous Sequential circuit, Flip-Flop and its different types: RS, JK; Master-Slave JK Flip-Flop.

Unit 13: Registers

Shift register, SISO, PISO, SIPO, PIPO shift register, Application of Shift Register.

Unit 14: Counters

Synchronous and Asynchronous Counter, Limitations of asynchronous counter, Frequency division counter.

Unit 15: Memory Organization

Memory types, Random access memory, Access time, RAM package, Static RSM, CMOS memory cell, Dynamic RAM, Read Only Memory, Memory expansion.

References:

1. Mano, M. M. (2017). *Digital logic and computer design*. Pearson Education India.
2. Talukdar, P. (2004). *Digital Techniques.* N L Publications

SEMESTER III: PROGRAMMING IN C

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide learners the concepts of C programming
- To help learners develop logical skills to solve complex problems with C programming
- To familiarize learners with basic concepts of programming so that they can write programs.
- To equip learners with skills to write C programs where concepts of functions, pointers, structures and file handling are used.

Course Outcome:

On completion of this course, the learners will be able to:

- describe concepts like pseudocode, algorithm, flowchart and program.
- define data types, variables, constants and keywords, operators and expressions
- design C programs where conditional, loop control statements, arrays and strings are used
- write C programs using, functions, pointers, structures and union

Unit 1: Introductory Concepts
Algorithm, Flowchart, Symbols of Flowchart, Pseudo Code, Examples of Algorithm, Flowchart and Pseudocode.
Unit 2: Elements of C Programming
Characters used in C, Identifiers, Keywords, Tokens, Constants, Variables.
Unit 3: Variables and Data types
Integer, Character, Floating point etc; Initialization of variable during declarations; Symbolic Constants.
Unit 4: Operators and Expressions
Expression in C, Different types of operators: Arithmetic, Relational and Logical, Assignment, Conditional, Increment and decrement, Bitwise, Comma and sizeof etc.; Precedence and associatively of operators, type conversion.
Unit 5: Preprocessor Directives and I/O Functions
Header Files (stdio, conio), Formatted Input / Output Functions (scanf, printf), Escape Sequences, Character Input/Output Functions (getch, getchar, putchar, gets, puts, getche, clrscr)
Unit 6: Conditional Statements
Conditional Statement- if, if- else, nested if-else, switch-case; break, continue, goto.
Unit 7: Loop Control Structures
Concept of Loops, Types of loop: while, do-while, for; nested loops
Unit 8: Storage Class
Automatic, External, Static, Register, Scope and lifetime of variables, Macro, Preprocessor directive
Unit 9: Arrays
Array, Array Declaration, 1-Dimensional array, 2-Dimensional array
Unit 10: Strings
String, String Handling Functions: strlen (), strcmp (), strcpy (), strrev (), strcat (), etc.
Unit 11: Functions
Function, Function declaration, Function definition, Function call, Formal and Actual parameter, Recursive function.
Unit 12: Pointers
Declaring Pointer Variable; Pointer Arithmetic, Pointers and One-Dimensional Arrays, Pointers and Character Arrays, Pointer declaration, Passing Pointer to a Functions as Argument, Dynamic Memory Allocation: malloc (), calloc (), realloc (), free ().
Unit 13: Structures and Union
Structure Declarations, Definitions, Defining your typedef, Array of Structure, Pointer to Structure. Union Declaration, Definition, Declaration, Uses
Unit 14: File Handling
Concept of File, File Pointer, File Opening in various modes, closing a file, reading and writing on files, Formatted Input / Output, fseek (), ftell (), rewind ().

References:

1. Schildt, H. (2021). C the complete reference.
2. Balagurusamy, E. (2016). Programming In Ansi C.
3. Kanetkar, Y. (2018). *Let us C*. BPB publications.

SEMESTER III: COMPUTER ORGANIZATION AND ARCHITECTURE

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners the knowledge of basic organization of computer
- To provide learners the knowledge of instruction sets, addressing modes and I/O techniques
- To familiarize learners with basic concepts like cache memory, virtual memory and mapping functions
- To provide learners knowledge of external memory, CISC and RISC architectures.

Course Outcome:

On completion of this course, the learners will be able to:

- describe the basic organization of the computer
- describe the different types of instruction sets and addressing modes
- explain how the different I/O techniques work
- describe parallel processing, CISC and RISC architecture

Unit 1: Basic Organization of the Computer
Basic organization of the computer and block level description of the functional Units from program execution point of view; Fetch, decode and execute cycle
Unit 2: Digital Components
Flip-Flops, Counter, Register, Half adder, Full Adder, Half subtractor, Full subtractor, Coder, Decoder, Multiplexer, De-multiplexer, Magnitude Comparator
Unit 3: Data Representation
Data representation, computer arithmetic and their implementation; control and data path, data path components, design of ALU and data path, control Unit design
Unit 4: Computer Arithmetic
Integer representation, sign magnitude representation, twos complement representation, integer arithmetic
Unit 5: Instruction Sets
Elements of a machine instruction, instruction representation, Simple instruction format, Instruction types, number of addresses, Types of operands, Types of operations. Different Instruction Formats, Instruction Types, Instruction Execution, Assembly language notation
Unit 6: Addressing Modes
Addressing, Immediate, Direct, Indirect, Registrar, Registrar indirect, Relative
Unit 7: Input-Output Organization
Different I/O techniques (Programmed I/O, Interrupt-Driven I/O), DMA (Direct Memory Access), I/O Processors.
Unit 8: Introduction to Cache and Virtual Memory
Memory Hierarchy, Semiconductor memories, internal organization of typical RAM and ROM Memory, Switches, Cache memory, Cache memory access techniques; Mapping functions, Virtual memory, Locality of reference, Paging, Cache Coherence Problem
Unit 9: Memory and I/O access
Memory Read Write operations, Concept of handshaking, Polling Techniques (Serial and Half Polling) and Interrupt driven I/O, Priority and Daisy Chaining Technique, Introduction to Memory Mapping, Basic concept of Cache and Virtual Memory
Unit 10: Memory and I/O Interfacing
I/O processor, Priority Encoder, Device Scheduler, Interfacing with the I/O Devices, keyboard,

printer and display interfaces

Unit 11: External Memory

Magnetic Disk, Magnetic read write operation, sector, track, inter track and inter sector gap, cylinder, fixed head disk, seek time, access time, transfer time, rotational delay, RAID, Optical memory, Magnetic tap

Unit 12: Processor Structure and Function

Processor organization: Fetch instruction, interpret instruction, fetch data, process data, write data, Registrar organization, Control and status registrar, Instruction cycle, Instruction pipelining (definition only)

Unit 13: Introduction to Parallel Processing

Introduction to Pipelining and Basics of Parallel Processing, Scalable Architecture

Unit 14: CISC and RISC Architecture

CISC (Complex Instruction Set Computers), RISC (Reduced Instruction Set Computers), Examples of CICS and RISC.

References:

1. Mano, M. M. (1993). *Computer system architecture*. Prentice-Hall, Inc..
2. Stallings, W. (2003). *Computer organization and architecture: designing for performance*. Pearson Education India.

SEMESTER IV: DATA STRUCTURE THROUGH C LANGUAGE

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide learners knowledge of data structures and algorithm complexities
- To provide learners knowledge of data structures like arrays, linked list, stacks and queues
- To provide learners knowledge of different searching and sorting algorithms
- To provide learners knowledge of trees, binary search trees, graphs, tree and graph traversal algorithms

Course Outcome:

On completion of this course, the learners will be able to:

- describe basic concepts of data structures and algorithm complexity
- design programs where concept of arrays, linked list, stacks and queues are used
- write C programs for different search techniques and sorting algorithms
- explain the concepts related to trees, binary trees and graphs

Unit 1: Introduction to Data Structure

Basic concept of data, Data type, Abstract Data Type, Types of Data Structure, Dynamic Memory allocation.

Unit 2: Algorithms

Algorithm, Complexity, Time-Space Complexity, Algorithmic Notation

Unit 3: Arrays

Arrays: Types, One dimensional array, Multidimensional arrays, memory representation, address translation functions, Applications of array, Random accessing of array element

Unit 4: Operations on Arrays

Traversal, Search, Problems associated with Insertion and Deletion, Sorting, Reversing, Merging

Unit 5: Recursion

Function, Rules for Recursive Function, Recursion versus Iteration, Advantages and Disadvantages

Unit 6: Linked List

Introduction to Linked List, Important terms associated with Linked list, Representation of Single linked list using Static and Dynamic Memory Allocation. Circular linked list, doubly linked list, Applications of Linked List.

Unit 7: Operations on Linked List

Insertion of node in a linked list (at Start, at End, at a Given Position), deletion of node in a linked list (at Start, at End, at a Given Position), searching and traversal of elements and their comparative studies with implementations using array structure, reversing a singly linked list.

Unit 8: Stacks

Definitions, LIFO, Representation using array and linked list structure, Applications of stack.

Unit 9: Queues

Definitions, FIFO, Representation using array, linked representation of queues, application of queue

Unit 10: Searching

Linear and binary search algorithms, performance and complexity using big 'O' notation

Unit 11: Sorting

Sorting algorithms (Complexity, advantages and disadvantage, implementation), bubble sort, insertion sort, selection sort, quick sort.

Unit 12: Trees

Definition, Types of trees, Implementation: Binary Tree, Tree traversal algorithms (in-order, preorder, post-order), infix, postfix, prefix notations

Unit 13: Binary Search Tree

Searching in Binary Search Tree (BST), insertion and deletion in Binary Search Trees, Height of BST, B-Tree, B Tree.

Unit 14: Graphs

Introduction to Graphs, Edge, Vertex, Depth first search (DFS) and Breadth first search (BFS) technique

References:

1. Langsam, Y., Augenstein, M. J., & Tenenbaum, A. M. (1996). *Data Structures using C and C++*. Prentice Hall Press.
2. Hopcroft, J. E., Ullman, J. D., & Aho, A. V. (1983). *Data structures and algorithms* (Vol. 175). Boston, MA, USA:: Addison-wesley.
3. Horowitz, E., & Sahni, S. (1982). Fundamentals of data structures.

SEMESTER IV: OBJECT ORIENTED PROGRAMMING THROUGH C++

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide learners the knowledge of concepts related to OOP like abstraction, encapsulation, inheritance and polymorphism
- To equip learners to design C++ programs using classes and objects, constructors and destructors
- To provide learners knowledge of concepts like operator overloading, virtual functions and polymorphism
- To familiarize learners with learners on how to handle and use files and templates in C++

Course Outcome:

On completion of this course, the learners will be able to:

- design C++ programs using classes and objects, constructors and destructors

- write C++ programs for operator overloading and different types of inheritances
- describe the concept of virtual functions and polymorphism
- describe the concept of file handling, class and function templates

UNIT 1: Introduction to Object-Oriented Programming
Basic concept of OOP, Comparison of Procedural Programming and OOP, Benefits of OOP, C++ compilation, Difference between C and C++.
UNIT 2: Features of Object-Oriented Programming
Abstraction, Encapsulation, Inheritance, Polymorphism
UNIT 3: Elements of C++ Language
Tokens and identifiers: Character set and symbols, Keywords, C++ identifiers. Variables and constants: Integers & Characters, Constants and Symbolic constants, Dynamic initialization of variables, Reference variables, Basic data types in C++.
UNIT 4: Operators and Manipulators
Operators, Types of Operators in C++, Precedence and Associativity, Manipulators
UNIT 5: Decision and Control Structures
If statement, If-else statement, switch statements, Loop: while, do-while, for; Jump statements: break, continue, Goto.
UNIT 6: Array, Pointers and Structure
Arrays, pointer, structure, unions;
UNIT 7: Functions in C++
The main() function, function prototype, function call, function definition, function parameter, inline function, default arguments, function overloading, friend function
UNIT 8: Introduction to Classes and Objects
Classes in C++, class declaration, declaring objects, Defining Member functions, Inline member function, Array of objects, Objects as function argument, Static data member and member function, friend class
UNIT 9: Constructors and Destructors
Constructors, Instantiation of objects, Default constructor, Parameterized constructor, Copy constructor and its use, Destructors, Constraints on constructors and destructors, Dynamic initialization of objects, Constructor Overloading.
UNIT 10: Operator Overloading
Overloading unary operators: Operator keyword, arguments and return value; Overloading Unary and binary operators: arithmetic operators, manipulation of strings using operators, Type conversions.
UNIT 11: Inheritance
Derived class and base class: Defining a derived class, Accessing the base class member, Inheritance: multilevel, multiple, hierarchical, hybrid; Virtual base class, Abstract class.
UNIT 12: Virtual Functions and Polymorphism
Virtual functions, Pure virtual functions; Polymorphism, Categorization of polymorphism techniques: Compile time polymorphism, Runtime polymorphism.
UNIT 13: File Handling
File classes, Opening and Closing a file, File modes, Manipulation of file pointers, Functions for I/O operations, File handling functions.
Unit 14: Templates
Introduction to Template, Function Template, Function Template Overloading, Class Template, Default Template Arguments.

References Books:

1. Schildt, H. (2003). *C++: The complete reference*. McGraw-Hill.
2. Stroustrup, B. (2013). *The C++ programming language*. Pearson Education.
3. Balagurusamy, E. (2010). Object Oriented Programming with C++| Tata McGraw Hill Education Pvt. *Ltd*,.

SEMESTER IV: DATA COMMUNICATION AND COMPUTER NETWORK

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners knowledge of various concepts in data communication and computer networks.
- To provide learners knowledge of different layers in the OSI and TCP/IP model
- To provide learners knowledge of TCP and UDP protocols
- To provide learners knowledge of network standard protocols like FTP, Telnet etc.

Course Outcome:
On completion of this course, the learners will be able to:

- describe the different types of networks and network topologies.
- explain OSI and TCP/IP reference models and the functions of all the layers.
- explain the fundamentals of standard protocols like TCP, UDP, FTP, Telnet etc.
- describe how different network devices and Ethernet works

Unit 1: Introduction to Data Communication
Introduction, Signals, Types of Signal: Analog, Digital, Block representation of Data Communication System, Definition of Protocols and Standards, Channel, Bandwidth, SNR
Unit 2: Types of Data Communication
Data Communication, Parallel and Serial Communication, Modes of Communication: Simplex, Half Duplex, Full Duplex; Asynchronous and Synchronous Communication
Unit 3: Digital Transmission Fundamentals
Digital Signal (PCM, Delta Modulation, Adaptive Delta Modulation, ASK, PSK, FSK), Multiplexing and De-multiplexing, Detection and Correction of Transmission Errors (Parity and Hamming Code Technique), Data Compression and Encryption, Concept of BCH Coding
Unit 4: Introduction to Computer Networks
Computer Network: Definition, Goals, Structure; Broadcast and Point-To-Point Networks; Types of Networks (LAN, MAN, WAN), Network Topologies, Network Protocols and Standards, Networking Switching Techniques
Unit 5: Network Models
Network Reference Models, OSI Reference Model, TCP/IP reference Model
Unit 6: Physical Layer
Physical Layer, Transmission Media, Guided and Unguided Media, Repeaters, Hub
Unit 7: Data Link Layer
Data Link Layer, Flow Control, Access Protocol, Bridges and Switches, MAC, LLC, Frame, Frame Format
Unit 8: Network Layer
Network Layer, Routing Protocols, Internet Protocol, IP Addresses, Sub-netting
Unit 9: Transport Layer
Process-To-Process delivery, User Datagram Protocol, Transmission Control Protocol: Characteristics, TCP Segment, Connection Establishment and termination
Unit 10: Session Layer
Interhost communication; Services- Dialog control, Token management, Synchronization; Protocols- Remote Procedure Call (RPC), NETBIOS.
Unit 11: Presentation Layer
Services - Data conversion, Translation, Encryption, Compression; Protocols - FTP, Telnet.
Unit 12: Application Layer
Client-Server Model: Client-Server model, Socket interface; A brief introduction to DNS, SMTP, FTP
Unit 13: Fundamentals of TCP and UDP

Connectionless and Connection Oriented Protocol, Transmission Control Protocol (TCP), User Datagram Protocol (UDP), IDP

Unit 14: Network Standard Protocol

FTP, Telnet, HTTP, Email Protocol, POP, SMTP, Browser, WWW, PING, Remote Login, Socket

Unit 15: Network Devices

Gateway, Bridge, Hub, Switch, RS-32C, Network Interface Card (NIC), Network Adapters, Components of NIC, Functions of NIC, Types of NIC; Ethernet: Basic Features, Types of Ethernet, Different Framer Format: IEEE 802.3, IEEE 802.4, IEEE 802.5.

References Books:

1. Forouzan, B. A. (2007). *Data communications and networking*. Huga Media.
2. Stallings, W. (2007). *Data and computer communications*. Pearson Education India.
3. Comer, D. E., & Stevens, D. L. (1993). *Internetworking with TCP/IP Vol. III: Client-server programming and applications*. Prentice-Hall, Inc..
4. Bertsekas, D., & Gallager, R. (2021). *Data networks*. Athena Scientific.

SEMESTER V: DATABASE MANAGEMENT SYSTEMS

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide learners knowledge of database architecture, data models and relational model
- To provide learners knowledge of functional dependencies and normalization
- To familiarize learners with SQL programming to create, alter and delete data and tables
- To provide learners knowledge of using GUI and connecting to a database

Course Outcome:

On completion of this course, the learners will be able to:

- describe the database architecture, data models and relational model
- explain functional dependencies, normalization and the different types of keys
- use SQL to create, modify, delete tables and databases and write queries and subqueries
- use WAMP and phpMyAdmin

Unit 1: File Structure

Data and Information, Concept of Field, Key field; Records and its types, Fixed length records and Variable length records; Files, Operation on files, Primary file organization

Unit 2: Database System

Traditional file approach versus Database approach; Data independence, Database System, Database Architecture, The three level of architecture, Mapping, Database administrator, Database Management system, Types of DBMS, Merits and demerits of DBMS

Unit 3: Data Models

Conceptual model, Logical model, Physical model, Entity-Relationship (ER) model as a tool for conceptual design: Entities, Attributes and Relationships, Weak and Strong entities, Conversion of ER model into Relational schema, ER modelling symbols.

Unit 4: The Relational Model

Relational data model concepts, Integrity constraints: Entity integrity, Referential integrity, Domain Constraints.

Unit 5: Keys

Concept of keys, Composite key, Candidate key, Primary key, Alternate key, Foreign key, Defining Primary and Foreign keys in Database.

Unit 6: Relational Database Design
Database Design, Decomposition, Universal Relation, Functional Dependencies, Prime and Non-prime attributes.
Unit 7: Normalization
Normalization, First Normal form (1NF), Second Normal form (2NF), Third Normal form (3NF), Boyce-Codd Normal form (BCNF)
Unit 8: Introduction to SQL
Structured Query Language (SQL), Characteristics of SQL, Advantages of SQL, SQL Data types, Types of SQL commands, DDL, DML, Creating a Database, Creating, Altering, and Deleting Tables
Unit 9: Working with SQL Part I
Inserting new data, Updating data (the WHERE Clause, The Logical AND and OR operator), Deleting Data.
Unit 10: Working with SQL Part II
The SELECT statement, Filtering results with the WHERE Clause; Logical Operators and Operator Precedence (Using logical operator NOT, BETWEEN, LIKE, IN); Ordering Results with ORDER BY(Joining columns-concatenation); Selecting data from more than one table.
Unit 11: Working with SQL Part III
Join, Types of Join, SQL commands: Select… From…Where… Group by ….. Having… Order by…, Tables, Queries, Sub Queries, Insert, Update and Delete operations, Constraints considers (NOT NULL, UNIQUE, Check Primary key, Foreign key)
Unit 12: Working with GUI
Introduction to WAMP, Installation of WAMP, Working with phpMyAdmin.
Unit 13: Database Recovery
Concept of database recovery, Backup of database, Types of database failure, Types of database recovery.
Unit 14: Database Security
Goals of database security, Discretionary Access Control, Mandatory Access control, Statistical Databases, Data Encryption.

Reference Books:

1. Elmasri, R., Navathe, S. B., Elmasri, R., & Navathe, S. B. (2000). *Fundamentals of Database Systems.* Addison-Wesley.
2. Ramakrishnan, R., Gehrke, J., & Gehrke, J. (2003). *Database management systems* (Vol. 3). New York: McGraw-Hill.
3. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2011). Database system concepts.
4. Schwartz, B., Zaitsev, P., & Tkachenko, V. (2012). *High performance MySQL: optimization, backups, and replication*. " O'Reilly Media, Inc.".

SEMESTER V: OPERATING SYSTEM

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners knowledge of concepts related to operating system like process, threads and deadlocks
- To familiarize learners with scheduling algorithms like FCFS, SJF and RR
- To provide learners knowledge of different memory management techniques like paging
- To provide learners knowledge of file systems and I/O management.

Course Outcome:

On completion of this course, the learners will be able to:

- explain concepts like process, threads, race condition, mutual exclusion and deadlocks
- describe how different types of scheduling algorithms like FCFS, SJF and RR work
- describe different memory management techniques including segmentation and paging
- explain how file system, I/O management and multiprocessor systems work

Unit 1: Introduction to Operating System

Operating system, Evolution of Operating Systems- batch system, multi-programmed system, time-sharing system, personal computer system, parallel systems.

Unit 2: Processes

Concept of process, Process life cycle, Process Control Block (PCB), Process Management

Unit 3: Threads

Concept of Threads, Uses of Thread, Design Issues of Thread, Thread Management

Unit 4: Interprocess Communication

Interprocess Communication, Message passing model, shared memory model

Unit 5: Process synchronization and Coordination

Concept of race conditions, critical-sections, mutual exclusion, Solution to critical section problem, disabling interrupt, Peterson's solution, Sleep & Wake up, The Producer Consumer Problem

Unit 6: Semaphores

Semaphores, Wait and Signal, Binary Semaphores, Application of semaphores

Unit 7: Scheduling

Basic concepts, primitive and non-primitive scheduling, Types of scheduling - batch, interactive and real-time, Scheduling criteria, Scheduling algorithms, first come first serve (FCFS), shortest job first (SJF) and round robin (RR) scheduling

Unit 8: Deadlocks

What is deadlock, Conditions for deadlock, Deadlock detection, Resource allocation graph, Methods for handling deadlocks-ignore problem, recovery & prevention, deadlock avoidance (banker's algorithm), Congestion versus Deadlock

Unit 9: Memory Management

Memory management requirements, Memory portioning, Fixed and Variable size partitioning, Swapping, Virtual Memory.

Unit 10: Segmentation and Paging

Basic Concept of Segmentation, Segmentation Architecture, Address Translation in Segmentation, Basic Concepts of Paging, Page Tables, Address Translation in Paging, Logical and Physical Address, Page replacement algorithms (First in First Out, Optimal, LRU).

Unit 11: File System

File Structure, File naming, File types(directory, regular, device), Sequential access and Random access files, File attributes, Operations on file, Directory Structure- Hierarchical directory structure, Path name (relative and absolute), Operation on directories, File System Implementation Techniques.

Unit 12: I/O Management

Basic principles of I/O Hardware, I/O Devices, Device controllers, DMA, Principles of I/O Software, Interrupt Handlers, Device Drivers, Device Independent I/O Software

Unit 13: Security and Protection

Security threats and goals, Authentication, Protection and Access control, Formal model of protection, Cryptography.

Unit 14: Introduction to Multiprocessor Systems

Introduction to Multiprocessor System, Types of Multiprocessor System, Functional characteristics of Multiprocessor OS, Multiprocessor Synchronization

References:

1. Silberschatz, A., Peterson, J. L., & Galvin, P. B. (1991). *Operating system concepts*. Addison-Wesley Longman Publishing Co., Inc..
2. Tanenbaum, A. S., *Modern operating systems*. (2007). Pearson Education

3. Nutt, G. J. (2001). *Operating Systems: A Modern Perspective, Lab Update*. Addison-Wesley Longman Publishing Co., Inc..
4. Stallings, W. (1998). *Operating systems internals and design principles*. Prentice-Hall, Inc..

SEMESTER V: MOBILE APPLICATION DEVELOPMENT

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To introduce students to the Android platform and its history, the Open Handset Alliance, and the architecture of the Android operating system.
- To provide students with the necessary knowledge and skills to install and use Android Studio for Android software development, including creating a new Android project, defining the project and SDK settings, and customizing the Android Studio IDE components.
- To enable students to design and develop Android applications, including understanding the components of the Android manifest file, creating activities, services, and intents, and managing permissions and application resources.
- To teach students how to create user interfaces in Android applications, including working with basic user interface screen elements, designing user interfaces with layouts, and using drawing and animation features in Android. Additionally, students will learn how to work with data storage options, file I/O, preferences, SQLite databases, content providers, network data access, and web services in Android applications.

Course Outcome:

On completion of this course, the learners will be able to:

- describe concepts related to android platform and android studio
- explain how to build an android application
- describe android design essentials like activities, services, intents, permissions and application resources.
- design user interfaces with layouts

Unit 1: The Android Platform

History of mobile application development, The Open Handset Alliance (OHA), The Android Platform, Android Versions, Native Android Applications, Android SDK Features, Android Architecture, Factors that affect Mobile Application development.

Unit 2: Installing Android Studio

System Requirements for Android Studio, Downloading Android Studio, Downloading JDK, Installing JDK, Installing Android Studio, Launching Android Studio.

Unit 3: Android Studio for Android Software Development

Features of Android Studio, App Workflow, Android Virtual Devices (AVD), Using Hardware Device to test Application, Android Studio IDE Components, Android Studio Code Editor Customization.

Unit 4: Building a sample Android application using Android Studio

Building a sample Android application using Android Studio, Creating a new Android Project, Defining the Project and SDK Settings, Creating Activity

Unit 5: Android Project Structure

Android Project Structure, Android Project Files, Android Application Modules, Types of Modules, Project structure settings, Anatomy of an Android Application, Important Android Terminology, Basic Android API Packages, Android Advanced API Packages

Unit 6: Android Manifest File and its common settings
Components of Manifest file, Package name and application ID, App components, Permissions, Device compatibility, File conventions, Manifest elements reference.
Unit 7: Android Application Design Essentials: Activities
What is activity?, Configuring the AndroidManifest.xml file, Life Cycle of an Activity, Understanding Life Cycle of an Activity, Context, Activity Transition.
Unit 8: Android Application Design Essentials: Services
Use of services, Creating a service, Start and Stop Service, Service Life Cycle, Creating your own Service.
Unit 9: Android Application Design Essentials: Intents
Intent Structure, Other Operations on Intent, Types of Intent, Intent Resolution, Example of Intent, Explanation of Example, Standard Activity Actions, Standard Broadcast Actions.
Unit 10: Android Application Design Essentials: Permissions
Permission approval, Request prompts for dangerous permissions, Permission for optional hardware features, Custom App Permission, Permission Protection Level, Viewing App permission.
Unit 11: Android Application Design Essentials: Application Resources
Application Resources, Resource Directory Hierarchy, Resource Value Types, Storing Different Resource Value Types, Accessing Resource Programmatically, Referencing System Resources.
Unit 12: Basic User Interface Screen elements
Introduction to Views, Controls and Layout, TextView, EditText, AutoCompleteTextView, Spinner, Buttons, Check Boxes, Radio Groups, Pickers
Unit 13: Designing User Interfaces with Layouts
Creating Layouts Using XML Resources, Creating Layouts Programmatically, Built-In Layouts, Frame Layout, Linear Layout, Relative Layout, Table Layout, Data Driven Container
Unit 14: Drawing and Working with Animation
Canvas and Paints, Bitmaps, Shapes, Frame by Frame animation, Tweened Animation

References:

1. Gargenta, M. (2011). *Learning android*. " O'Reilly Media, Inc.".
2. Ableson, F., King, C., & Ortiz, C. E. (2011). *Android in action*. Simon and Schuster.
3. Haseman, C. (2009). *Android essentials*. Apress.

SEMESTER V: LINUX SYSTEM ADMINISTRATION

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:
- To provide learners knowledge of system administrator roles and qualities
- To provide learners knowledge of Linux kernel and file system
- To familiarize learners with learners to use shell programming to write small programs
- To provide learners knowledge of networking protocols and various network security issues.

Course Outcome:
On completion of this course, the learners will be able to:
- describe the role and qualities of a system administrator
- describe Linux kernel and the Linux file system
- use various Linux file handling and filter commands
- describe various networking protocols and basic network security issues

Unit 1: Introduction to System Administration
Introduction to System Administration, Role and power of System Administrator, Qualities of good System Administrator
Unit 2: Introduction to LINUX Operating System
Basic Features of the Linux operating system. A brief Overview of the most popular Linux Distributions – (Red Hat Enterprise Linux (RHEL), Ubuntu, Debian, Fedora, SUSE)
Unit 3: Installation of LINUX Operating System
Installation Requirements, Partitioning the Hard drive in Linux, Installing the Linux system, Installing and Configuring software in Linux
Unit 4: LINUX Kernel
Linux kernel and device drivers, System Startup and Shutdown, Standard I/O, Standard error, Redirection and Piping.
Unit 5: Basics of LINUX File System
Basics of Linux file system - File system types (ext3, ext4, xfs, jfs, ReiserFS, iso9660 etc.), three basic types of files (ordinary or regular, special or device and directory).I-nodes and file attributes
Unit 6: File organization
Absolute and Relative path names, File system Mounting and Unmounting, Organization of the file tree, Standard directories and their contents
Unit 7: LINUX File Handling Commands
Files and Directory handling Commands - ls, cd, cp, mv, rm, mkdir, rmdir, Commands for Creating and Viewing ordinary files – cat, more, pg
Unit 8: LINUX Filter Commands
Filter Commands – wc, head, tail, cut, tr, grep (with regular expressions). Setting user and group ownership of files and Access permissions – chmod, chown, chgrp commands
Unit 9: LINUX Shells
Study of different Linux Shells (sh, bash, csh, zsh), Environment variables, Shell script basics (examples of some simple shell programming)
Unit 10: Process
Basic commands for starting and stopping processes, Basic process attributes and their role in Access control. Examining the list of running processes on the system and understand the data presented there. Background process, Job control, Crontab file format, Backup and Restore procedure
Unit 11: Printing Jobs
Submit a print job, check the status of a print job, cancel a print job, configuring the Print Queue, Selecting the Print Driver, Editing the Printer configuration
Unit 12: LINUX Users
Understanding the "root" account, Becoming a Superuser (su), A limited su (sudo) Managing user accounts - Adding a new user, Modifying and Removing User accounts, Changing Password, System monitoring and logging, Monitoring memory usage, disk space usage and I/O activity .
Unit 13: Networking in LINUX
The rules governing IP address classes and netmasks, Network Address, Netmask and Gateway configuring Interface with ifconfig, ping, netstat, traceroute, telnet, understanding the significance of the /etc/services file and well known port numbers
Unit 14: Network Protocols
Basics of configuring NFS, NIS, DNS, FTP, Squid Proxy, DHCP server, ip tables and firewall
Unit 15: Basic Network Security Issues
Introduction to Basic Network Security Issues, Packet Snifflers, DOS Attacks, Linux Kernel Firewalling, Virtual Private Networks

References:

1. Nemeth, E., Snyder, G., & Hein, T. R. (2006). *Linux administration handbook*. Addison-Wesley Professional.
2. Frisch, A. (2002). *Essential system administration: Tools and techniques for linux and unix administration*. " O'Reilly Media, Inc.".

SEMESTER VI: COMPUTER GRAPHICS

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners the basic concepts used in computer graphics.
- To provide learners the knowledge of various graphics systems.
- To implement various algorithms to draw, scan, convert the basic geometrical primitives, transformations, area filling, clipping etc.
- To provide the concept of graphic transformations.
- To provide the concept of viewing and projections.

Course Outcome:

On completion of this course, the learners will be able to:

- understand the basics of computer graphics and different graphics systems.
- implement various line, circle, ellipse drawing algorithms.
- use geometric transformations on graphical objects.
- extract scene with different clipping methods and its transformation to graphics display device.
- learn projections techniques and basics of animation.

Unit 1: Introduction to Computer Graphics

Definition, Application Areas of Computer Graphics (CAD, CAM, Education and Training, Entertainment, Image Processing, Computer Art etc.), Graphical User Interfaces (GUI)

Unit 2: Graphics Systems

Cathode Ray Tubes, Random Scan Displays, Raster Scan Displays, Color CRT Monitors, FlatPanel Displays (Plasma-Panels, Liquid Crystal Displays(LCD), Electroluminescent displays), Graphics Software (GKS, PHIGS)

Unit 3: Line Drawing Algorithms

Points and Lines, Line Drawing Algorithms (DDA Algorithm, Bresenham's Line Algorithm)

Unit 4: Circle and Ellipse Drawing Algorithms

Circle drawing algorithms, Ellipse Drawing algorithms

Unit 5: Filled Area Algorithms

Filling (Scan-Line Polygon filling, Inside outside tests, Boundary-fill and Flood-fill algorithm)

Unit 6: Transformations

Basic 2-D Transformations (Rotation, Reflection, shearing, scaling), Homogeneous Coordinate Representation, Translation, 3-D transformations

Unit 7: 2-D Viewing

2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions

Unit 8: Clipping Algorithms

Line and polygon clipping algorithms (Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm)

Unit 9: 3-D Object Representation

3-D Object representation: Polygon surfaces, quadric surfaces, spline representation, Basic illumination models, polygon rendering methods

Unit 10: Bezier and B-spline Curves

Hermite curve, Bezier curve and B-spline curves, Bezier and B-spline surfaces

Unit 11: Projections

Projection Classification, Parallel projections, Perspective projections (One point, Two point).

Unit 12: 3-D Geometric Transformations

Translation, rotation, scaling, reflection and shear transformations, composite transformations

Unit 13: 3-D Viewing
Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping
Unit 14: Basics in Animation
Animation Basic, Computer Animation, Principles of Animation, Types of Animation, Animation Software (Maya, etc) and Hardware, Common Terms in Animation
Unit 15: Animation Designing
Design of Animation sequence, Morphing, Application of Computer Animation, Future of Animation

References:

1. Donald Hearn and M Pauline Baker, Computer Graphics, PHI
2. James D. Foley, AndriesVan dam, Steven K. Feiner& John F. Hughes, Computer Graphics - Principles and Practices, Pearson Education.
3. David F. Rogers, Procedural Elements for Computer Graphics, Tata-McGraw Hill

SEMESTER VI: SOFTWARE ENGINEERING

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide the concept of various software development methodologies for identifying suitable models for software development.
- To provide the understanding of various theories, models, and techniques which are the basis for software lifecycle.
- To provide learners the knowledge of software project management.
- To comprehend the use of different testing strategies in software development.

Course Outcome:
On completion of this course, the learners will be able to:

- learn the principal steps for design, development and implementation of a software.
- identify and apply appropriate software architectures and patterns to carry out design of a system and be able to compare alternative choices.
- learn to select appropriate process models for software development.
- describe staffing, scheduling and about requirement analysis and specification.
- have experience and/or awareness of testing problems.

Unit 1: Introduction to Software Engineering
Software Engineering, Need of Software Engineering, Software Characteristics, Software Development Projects: Programs versus Products, Quality and Productivity of software products.
Unit 2: System Development Methodologies
System Development Phases, Software Life Cycle Model, Software Development Models: Classical and Iterative Waterfall Model, Prototyping Model, Evolutionary Model, Spiral Model, Comparison of different Models.
Unit 3: Software Project Management
Software Project Manager, Project Planning, Project Estimation Techniques, Empirical method of Estimation, Heuristic method of Estimation- COCOMO Model, Analytical method of Estimation, Risk Management, Configuration Management.
Unit 4: Staffing and Scheduling
Staffing, Scheduling, Work Breakdown Structure, Activity Networks, Critical Path, Gantt Charts, PERT Charts
Unit 5: Role of System Analyst
System Analyst, Knowledge and Qualities of System Analyst, Role of a System Analyst.

Unit 6: Requirement Analysis and Specification

Fact Gathering, Requirement Analysis, Feasibility Study and Types, User Transaction Requirement, User Design Requirements, System Requirement Specification (SRS), Functional Requirements of SRS, Organization of SRS.

Unit 7: Software Design

Modules Concepts and Types of Modules, Structured Chart, Qualities of Good Design: Coupling, Types of Coupling, Cohesion, Types of Cohesion, Approaches to Software Design, Function-Oriented Design, Object-Oriented Design

Unit 8: Function-Oriented Software Design

Entity-Relationship Diagrams, Decision Tree and Decision Table, Data Flow Diagrams (DFD), Data Dictionary: Elements of DD, Advantage of DD; Pseudo code, Input And Output Design.

Unit 9: Object-Oriented Software Design

Unified Modeling Language (UML), UML Diagrams, Use Case Model, Class Diagrams, Activity Diagrams.

Unit 10: User Interface Design

Characteristics of a Good User Interface, Basic Concept: User Guidance and Online Help, Modeless Interface, Graphical User Interface (GUI) vs. Text-based User Interface, Types of User Interfaces, Fundamentals of Component-based GUI Development, A User Interface Design Methodology.

Unit 11: Software Coding

Coding, Coding Standards and Guidelines, Code Review: Code Walkthrough, Code inspection, Clean room testing, Software Documentation, Internal Documentation, External Documentation.

Unit 12: Software Testing

Software Testing, Testing Strategies, Types of Testing: Black-Box Testing, White-Box Testing, Stress Testing, Storage Testing, Performance Testing, Unit Testing, Integration Testing.

Unit 13: Software Reliability and Quality Management

Software Reliability, Hardware versus Software Reliability, Reliability Matrics, Reliability Growth Modelling, Statistical Testing, Software Quality, Software Quality Management System, Evolution of Quality Systems, Product Metrics versus Process Metrics

Unit 14: Software Maintenance

Software Maintenance, Types of Software Maintenance, Software Reverse Engineering, Maintenance Cost

Unit 15: Case Tools

Introduction to CASE, Building Blocks of CASE, Integrated CASE Environment.

References:

1. Mall, R. (2018). Fundamentals of software engineering. PHI Learning Pvt. Ltd.
2. Jalote, P., An Integrated approach to software engineering, Narosa Publishing House.
3. Pressman, R. S., Software Engineering: A practical Approach; McGraw-Hill.
4. Humphery, W. S., Managing software Procedures, Addission-Wesley

SEMESTER VI: WEB TECHNOLOGY

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide the knowledge of important components of the Internet and Web.
- To get introduced to HTML, DHTML, XML, Cascading Style Sheets, and basics of AJAX.
- To get introduced to JavaScript to build dynamic web pages.
- To get introduced to server-side programming PHP.

Course Outcome:
On completion of this course, the learners will be able to:

- get introduced to core parts of a web.
- create web pages using HTML, DHTML, and Cascading Style Sheets.
- learn various HTML tags, table and list creation tags, HTML frames and forms.
- build dynamic web pages using the client-side programming JavaScript.
- create XML documents.
- learn the basics of AJAX
- build interactive web pages using PHP

Unit 1: Basics of Internet and Web
The basics of Internet, World Wide Web, Web page, Home page, Web site, Static, Dynamic and Active web page, Overview of Protocols – Simple Mail Transfer Protocol, Gopher, Telnet, Emails, FTP, Hyper Text Transfer Protocol, Client server computing concepts, MIME, Web Surfing
Unit 2: Web Client
Web Browser, Browsers e.g., Netscape navigator, Internet Explorer, Mozilla Firefox, Client-Side Scripting Languages- VB Script and Java Script, Active X control and Plug-ins
Unit 3: Web Sever
Web Server Architecture, Image maps, CGI, API web database connectivity-DBC, ODBC, Proxy Server
Unit 4: Introduction to HTML
Introduction to HTML, Essential Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Attributes of Image Tag, Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, Links to External Documents.
Unit 5: HTML Lists and Tables
Lists, Unordered Lists, Ordered Lists, Definition Lists, Tables, TABLE, TR and TD Tags, Cell Spacing and Cell Padding, Colspan and Rowspan
Unit 6: HTML Frames and Form
Frame, Frameset, FRAME Tag, NOFRAMES Tag, Forms, FORM and INPUT Tag, Text Box, Radio Button, Checkbox, SELECT Tag and Pull Down Lists, Hidden, Submit and Reset
Unit 7: Cascading Style Sheet
Cascading Style Sheets (CSS), Inline Style, Embedded Style, External Style Sheet, Imported Style Sheet, Creating a CSS file, Using CSS in a web page
Unit 8: Dynamic HTML
Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.
Unit 9: Introduction to JavaScript
Introduction, Language Elements: Identifiers, Expressions, Operators, Statement Functions
Unit 10: Objects in JavaScript
Objects: Window, Document, Form Objects, TextBox, TextArea, Button, Radio Button, CheckBox, Select Objects, Date, Match, String Objects; Regular Expression, Arrays
Unit 11: AJAX Basics
Introduction, AJAX, XML http Request Object, AJAX Request, AJAX Response, AJAX Events
Unit 12: XML
XML - Declaration, Root Element, Child Elements, Element Attributes, Entity References, Comments.
Unit 13: Introduction to PHP
Server Side Programming , Introduction to PHP, Basic Programming Concepts of PHP: Variables, Data-types, Constants, Scope of Variables, Type of Variables, Type Casting, Operators, Operators Precedence, References.
Unit 14: Control statements in PHP
Control Structures: Branching, If statement, Switch statement; Looping: for Loop, while Loop, do while Loop, for each Loop; Arrays
Unit 15: Functions in PHP

Functions: User Defined Functions, Built-in Function, Functions for Variables; Script Controlling Functions, Array Functions, Date and Time Functions, Mathematical Functions, String Functions, PHP Server Variables; Working with form, Uploading files to Web Server using PHP.

References:

1. Steven Holzner,HTML Black Book, Dremtech press.
2. Jeffrey C. Jackson ,Web Technologies: A Computer Science Perspective, Prentice Hall, 2006.
3. Craif Knuckles, David Yuen, Web Applications: Concepts and Real-World Design, Wiley India Pvt Ltd, 2006.

SEMESTER VI: INTRODUCTION TO PYTHON PROGRAMMING

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To get introduced to Python programming.
- To provide the concept of various flow control of the Python programming language such as conditionals, looping.
- To provide the concept of functions and its implementation in Python.
- To provide the ability to design an object – oriented programs with Python.
- To provide the knowledge of file processing in Python

Course Outcome:

On completion of this course, the learners will be able to:

- learn Python installation, Anaconda installation
- work with Google Colab, Jupyter Notebook, and Spyder.
- learn Python basics like input/output statements, strings, decision control and loop control statements.
- define and demonstrate the use of built-in data structures lists, tuples, and dictionary.
- use functions and modules in Python programming.
- design object-oriented programs and to handle files in Python.

UNIT 1: Installation of Python

Python Installation, Working with Google Colab, Anaconda Installation, Working with Jupyter Notebook, Spyder

UNIT 2: Introduction to Python

Python, Python Interpreter, Using Python as calculator, Python shell, Indentation.

UNIT 3: Python Basics

Atoms, Identifiers and keywords, Literals, Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment operator, Bit wise operator, Identity and Membership operator.

UNIT 4: Strings

Strings, String properties, Built-in functions, String Methods, String Conversions, String Comparisons

UNIT 5: Decision Control Statements

Input and Output Statements, Control statements, Conditional Statements- if...else, Nested if statements, Ternary Operators.

UNIT 6: Loop Control Statements

Looping- while Loop, for Loop, Loop Control, break, continue and pass.

UNIT 7: Lists

Lists, Accessing List elements, looping in Lists, Basic List operations, Using built-in functions on Lists, List methods, Sorting and reversing.

UNIT 8: Tuples

Tuples, accessing tuple elements, looping in tuples, basic tuple operations, using built-in functions on Tuples, Tuple methods, Tuple varieties

UNIT 9: Sets

Definition of set, accessing set elements, looping in sets, basic set operations, Sets, Sets Methods and Functions

UNIT 10: Dictionaries

Dictionary, definition of dictionaries, accessing dictionary elements, looping in dictionaries, basic dictionary operations.

UNIT 11: Functions

Functions: Definition, call, positional and keyword parameter. Default parameters, variable number of arguments

UNIT 12: Modules

Modules: import mechanisms, Functional programming: map, filter, reduce, max, min. lambda function.

UNIT 13: Object Oriented Programming

Object Oriented Programming, Definition of Classes and Objects, Python Inheritance, Different types of Inheritance with examples.

UNIT 14: File Processing

File Processing: reading and writing files, manipulating file pointers using seek.

References:

1. Budd, T. (2010). *Exploring Python*. McGraw Hill Higher Education.
2. The Python Tutorial — Python 3.11.2 documentation
3. Wentworth, P., Elkner, J., Downey, A. B., & Meyer, C. (2015). How to think like a computer scientist: Learning with Python 3.

SEMESTER VII: FULL STACK DEVELOPMENT

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- Learners will learn the basics of web development using HTML, CSS, and JavaScript. They will gain a deep understanding of these technologies, including how to structure web pages, style content, and add interactivity with JavaScript.
- Learners will gain a deep understanding of ReactJS, including how to use JSX, create components, manage state, and handle user input. They will learn how to build robust, dynamic web applications that can scale to meet the needs of users.
- Learners will learn how to use NodeJS to create fast, efficient web servers and APIs. They will also gain a deep understanding of MongoDB and how to use it to store and retrieve data. They will be able to build full-stack web applications that can handle large amounts of data.

Course Outcome:

On completion of this course, the learners will be able to:

- develop dynamic and interactive web applications using HTML, CSS, JavaScript, ReactJS, NodeJS, MongoDB, Python, and PHP frameworks.

- create and manage databases using MongoDB, including migrating data into MongoDB and integrating it with NodeJS, Python and PHP
- understand and apply key concepts such as templating, components, state, props, lifecycle, routing, and error handling in ReactJS, as well as features such as Redux, Redux Saga, and service side rendering.

Unit 1: HTML (Part 1)
Introduction to HTML, Browsers and HTML, Editor's Offline and Online, Tags, Attribute and Elements, Doctype Element, Comments, Headings, Paragraphs, and Formatting Text, different versions of HTML.
Unit 2: HTML (Part 2)
Inserting Images, Hyperlinks, creation of Tables, Table attributes, Creation of Lists, Types of Lists.
Unit 3: CSS
Introduction CSS, Applying CSS to HTML, Selectors, Properties and Values, CSS Colors and Backgrounds, CSS Box Model, CSS Margins, Padding, and Borders, CSS Text and Font Properties, CSS General Topics.
Unit 4: Programming with Javascript (Part 1)
Introduction to JavaScript, Applying JavaScript (internal and external), Understanding JS Syntax, Introduction to Document and Window Object, Variables and Operators, Data Types and Num Type Conversion, Math and String Manipulation, Objects and Arrays, Date and Time.
Unit 5: Programming with Javascript (Part 2)
Conditional Statements, Switch Case, Looping in JS, Functions.
Unit 6: ReactJS Development (Part 1)
Introduction to ReactJS, Templating using JSX, Components, State and Props.
Unit 7: ReactJS Development (Part 2)
Lifecycle of Components, Rendering List and Portals, Error Handling, Routers.

Unit 8: ReactJS Development (Part 3)
Redux and Redux Saga, Immutable.js, Service Side Rendering, Unit Testing, Webpack.
Unit 9: NodeJS Development (Part 1)
Node js Overview, Node js - Basics and Setup, Node js Console, Node js, Command Utilities.
Unit 10: NodeJS Development (Part 2)
Node js Modules, Node js Concepts.
Unit 11: NodeJS Development (Part 3)
Node js Events, Node js with Express js, Node js Database Access.
Unit 12: MongoDB (Part 1)
QL and NoSql Concepts, Create and Manage MongoDB, Migration of Data into MongoDB.
Unit 13: MongoDB (Part 2)
MongoDB with NodeJS, Services Offered by MongoDB.
Unit 14: Python
Python Installation & Configuration, developing a Python Application, Connect MongoDB with Python.
Unit 15: PHP
PHP installation and Configuration, Developing PHP application, connect MongoDB with PHP, PHP and MongoDB operations with examples.

References:

1. "HTML and CSS: Design and Build Websites" by Jon Duckett
2. "Learning React: A Hands-On Guide to Building Web Applications Using React and Redux" by Kirupa Chinnathambi.
3. "Node.js, MongoDB, and AngularJS Web Development" by Brad Dayley.

SEMESTER VII: INTRODUCTION TO IMAGE PROCESSING

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To provide image fundamentals and mathematical transforms necessary for image processing.
- To provide the knowledge of image sampling, image transformation, and image enhancement techniques.
- To provide the concept of filtering and segmentation.
- To provide the knowledge of image restoration procedures.

Course Outcome:

On completion of this course, the learners will be able to:

- learn the fundamental concepts of image processing.
- evaluate the techniques for image enhancement and image restoration.
- categorize and interpret various compression techniques.
- interpret image segmentation and representation techniques.

Unit 1: Fundamentals of Image

Definition of image, Analog image, digital image, Advantages & disadvantages of digital image, digital image representation, pixel, neighbours of pixel

Unit 2: Image Sampling

Introduction, Theory of 2D sampling, violation of sampling criterion, quantization, Resolution, Anatomy of the human visual system

Unit 3: Digital Image

Classification of digital image: Raster image, vector image, Image types: Binary image, grayscale image, color image, multispectral image, hyper spectral image, Elements of image processing system: Image sensor, acquisition, CCD sensor, CMOS image sensor comparison of CCD and CMOS sensors, Digital camera, Image file format, GIF file format, JPEG, PNG, TIFF, PSD, EPS, BMP, Application of digital image processing.

Unit 4: Image Transform

Introduction, need for transform, Image transform, classification of image transform, Fourier transform, 2D discrete Fourier transform, Properties of 2D DFT: Separable, spatial shift property, periodicity, convolution, correlation properties, scaling property, rotation property

Unit 5: Image Enhancement in Spatial Domain

Introduction, Image enhancement in spatial domain: point operation, mask operation, Types of point operation: Brightness modification, contrast adjustment

Unit 6: Image Histogram

Introduction, histogram equalization, procedure to perform histogram equalization

Unit 7: Filtering

Introduction, Spatial filtering, linear filtering, low pass filter, limitations of low pass filter, weighted average filter, Bartlett filter, Gaussian filter, Median filter, High pass filtering

Unit 8: Image Enhancement in Frequency Domain

Introduction, Low pass filtering in frequency domain, High pass filter in frequency domain, Butterworth high pass filter, Homomorphic filter

Unit 9: Image Restoration

Introduction, Image degradation, Types of image Blur, Classification of Image Restoration technique, Image restoration model, Linear Image Restoration techniques, Pseudo Inverse filter, Wiener filter, Non-Linear Image Restoration techniques: Iterative method, Maximum likelihood Method, Stochastic image restoration technique.

Unit 10: Image Noise
Introduction, classification of noise image: adaptive noise, Multiplicative noise, impulse noise, Median filtering, trimmed average filter
Unit 11: Image Segmentation
Introduction, Classification of Image segmentation technique, Local and global segmentation, region approach to image segmentation, clustering technique, Image segmentation based on thresholding, Limitation, edge detection techniques, edge linking, Watershed transformation
Unit 12: Image Compression
Introduction, Need for Image compression, Redundancy in images, Image compression scheme Huffman coding, Arithmetic coding, transform base coding, Vector quantization
Unit 13: Binary Image Processing
Introduction, Binarisation, Mathematical morphology, structuring element, Morphological image processing, Basic set theory, Logical operations, Standard binary morphological operations: Dialation, Erosion, Opening, Closing, Properties of Morphological operations.
Unit 14: Color Image Processing
Introduction, Color formation, Human perception of color, Color model: RGB model, CMY color model, HIS color model, YIQ color model, Histogram equalization of color image, Color Image filtering
Unit 15: Wavelet-based Image Processing
Introduction, Wavelet, Wavelet transform, 2D continuous wavelet transform, Discrete wavelet transform, Haar Wavelet, Filter bank, Embedded Image coding.

References:

1. Digital Image Processing, Rafael C. Gonzalez and Richard E. Woods, 4th Edition, Prentice Hall.
2. Anil K. Jain, Fundamentals of Digital Image Processing, Prentice Hall.
3. Stan Birchfield, Image Processing and Analysis, Cengage Learning.

SEMESTER VII: DATA MINING AND DATA WAREHOUSING

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:
- To introduce learners to the basic concepts and techniques of Data Mining and Data Warehousing.
- To introduce basic principles, concepts and applications of data warehousing.
- To introduce the concept of data preprocessing.
- To provide the knowledge of data warehouses architecture.
- To introduce a wide range of clustering, estimation, prediction, and classification algorithms.

Course Outcome:
On completion of this course, the learners will be able to:
- understand the functionality of the various data mining and data warehousing components.
- remove redundancy and incomplete data from the dataset using data preprocessing methods.
- learn about interesting patterns from large amounts of data to analyze for predictions and classification.
- learn about clustering and various clustering algorithms.
- understand warehousing architectures and tools for systematically organizing large databases.
- learn about OLAP and OLTP.
- characterize the kinds of patterns that can be discovered by association rule mining.

Unit 1: Introduction to Data Mining

Data mining, various types of Data, Data Mining Functionalities, Classification of Data mining systems, Data mining Task Primitives, Integration of Data Mining System, Major issues in Data Mining

Unit 2: Introduction to Data Warehousing

Data Warehouse and DBMS, Need for data warehousing, Operational & Informational Data Stores, Data Warehouse Characteristics, Building a Data Warehouse, Design/Technical/Implementation Considerations, Data Warehouse role & Structure, The cost of warehousing data

Unit 3: Introduction to OLAP

Introduction to OLAP & OLTP, Difference between OLAP & OLTP, OLAP Operations

Unit 4: Data Preprocessing

Data preprocessing, Data Summarization, Data Cleaning, Data Transformation, Data reduction, Concept Hierarchy, Structure

Unit 5: Multidimensional Data

Multidimensional Data Model, Schemas for Multidimensional Data (Star Schema, Snowflake Schema, Fact Constellation)

Unit 6: Data Warehouse Architecture

Data Warehouse Architecture, Data Warehouse Design, OLAP Three -tier Architecture, Indexing & Querying in OLAP, OLAM, Implementation from Data Warehouse to Data mining

Unit 7: Data Mining Knowledge Representation

Task relevant data, Background knowledge, Interestingness measures, Representing input data and output knowledge, Visualization techniques

Unit 8: Attribute-oriented Analysis

Attribute generalization, Attribute relevance, Class comparison, Statistical measures

Unit 9: Association Rule Mining

Association Rule Mining, Market Basket Analysis, Apriori Algorithm, Mining Multilevel Association Rules, From Association Mining to Correlation Analysis

Unit 10: Classification

Introduction to Classification, Classification by Decision Tree, Attribute Selection Measure, Covering rules

Unit 11: Prediction

Introduction to Prediction techniques, Statistical (Bayesian) classification, Bayesian networks, Instance-based methods (nearest neighbor)

Unit 12: Evaluation

Training and Testing, Evaluating accuracy of a Classifier, Cross-Validation, Combining multiple models (Bootstrap, Boosting, Bagging)

Unit 13: Clustering

Introduction to Clustering, Classification of Various Clustering Algorithms, Partitioning methods- k-means, Density based DB-SCAN, Hierarchical methods- agglomerative and divisive clustering

Unit 14: Introduction to Web Mining

Web Mining introduction, web content mining, web structure mining, web usage mining, text mining, unstructured text, episode rule discovery for text

Unit 15: Introduction to Spatial and Temporal Data Mining

Temporal Data Mining, Temporal Association Rules, Sequence Mining, Spatial Mining, Spatial Mining tasks, spatial clustering.

References:

1. Ville, Decision Trees for Business Intelligence and Data Mining: Using SAS Enterprise Miner, SAS, 2006.
2. Pang-Ning Tan, Introduction to Data Mining, Addison Wesley, 2006.
3. J. Han and M. Kamber, Data Mining: Concepts and Techniques, Morgan Kaufman, 2001.
4. Tom Soukup, Davidson, Visual Data Mining: Techniques and Tools for Data Visualization and Mining, Wiley, 2002.
5. Alex Berson, Stephen J. Smith, Data Warehousing, Data Mining, and OLAP, MGH, 1998.

SEMESTER VIII: OPEN SOURCE SOFTWARE

Course Type:	**DSC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objective:

- To familiarize learners to the free open-source software environment and procedure for installing open-source packages.
- To provide the knowledge of using open-source packages LaTeX, Scilab, and Python with their applications.
- To provide a clear understanding of the basics of technical writing which will enable the learners to communicate their ideas effectively in the form of technical reports, journal papers etc., by using the technical writing tool LaTeX.
- To provide the knowledge of the Scilab environment and programming language.
- To get introduced to the basics of Python programming.

Course Outcome:

On completion of this course, the learners will be able to:

- understand the installation of various open-source packages like LaTeX, Scilab, and Python.
- formatting documents containing sectioning, tables, equations and figures.
- typesetting articles, technical reports, slide presentations, books etc.
- learn the Scilab environment and programming language.
- learn about the basics of Python commands and programming.

Unit 1: Installation to LaTeX

Installation of LaTeX, Understanding Latex compilation

Unit 2: Introduction of LaTeX

Basic Syntax, Writing equations, Matrix, Tables

Unit 3: Page Layout – I

Page Layout – Titles, Abstract Chapters, Sections, References, Equation references, citation, Table of contents

Unit 4: Page Layout – II

List making environments, Generating new commands, Figure handling, table & figure numbering, List of figures, List of tables, Generating index

Unit 5: Packages

Packages: Geometry, Hyperref, amsmath, amssymb, algorithms, algorithmic graphic, color, tilez listing

Unit 6: Classes

Classes: article, book, report, beamer, slides, letter

Unit 7: Applications of LaTex

Applications: Writing Resume, Writing question paper, Writing articles/ research papers, Presentation using beamer, inserting graphics, drawing graphics, putting equations

Unit 8: Installation of Scilab

Installation of Scilab (both windows & Linux)

Unit 9: Introduction to Scilab

Introduction to scilab, Basic syntax, Mathematical Operators, Predefined constants, Handling .sci files, Installation of additional packages e.g. optimization

Unit 10: Functions in Scilab

Built in functions, Complex numbers, Polynomials, Vectors, Matrix operations (functions like inv(), spec(), zeros(), ones(), eye(), rand(). Handling these data structures using built in functions.

Unit 11: Conditional Statements in Scilab
Loops (for & while), Conditional statements
Unit 12: Graphics in Scilab
Graphics handling: 2D, 3D, Generating .jpg files, Function plotting, Data plotting, GUI in Scillab, Plotting 2D graphs
Unit 13: Applications of Scilab
Applications: Numerical Linear Algebra (Solving linear equations, Eigen values etc.), Solving Ordinary Differential Equations, Numerical Analysis – iterative methods, Comparison with C/C++/Matlab
Unit 14: Introduction to Python
Introduction to Python, Procedure to install Python, How to open Python console, Basic Python commands, Python programming

References:

1. F. Mittelbach, M. Goossens, The LaTeX Companion, 2nd ed. Addison- Wesley (2004), ISBN 0-201-36299-6.
2. L. Lamport: LATEX, A Document Preparation System, User's Guide and Reference Manual, 2nd ed., Addison-Wesley (1994), ISBN 0-201-52983-1
3. Knuth, D. E., & Bibby, D. (1984). The Tex book (Vol. 3). Reading: Addison-Wesley.
4. Verma, A. K., (2018). SCILAB: A beginner's Approach.
5. Nagar, S., (2018). Introduction to Scilab: For Engineers and Scientists.
6. Barry, P. (2016). Head First Python: A Brain-Friendly Guide. " O'Reilly Media, Inc."
7. Matthes, E. (2015). Python crash course: a hands-on, project-based introduction to programming. No Starch Press.

SEMESTER VIII: FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Course Type:	**Core**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objective:

- To provide learners an introduction to Artificial Intelligence.
- To provide the fundamental concept of Machine Learning.
- To provide the understanding of supervised and unsupervised learning

Course Outcome:
On completion of this course, the learners will be able to:

- learn about the basic concepts of Artificial Intelligence.
- explain the basics of problem solving, and learning methods of AI.
- learn the techniques on how to make learning by a model, how it can be evaluated, what are all different algorithms to construct a learning model.
- get introduced to the field of Machine Learning, in particular focusing on the concepts of supervised and unsupervised learning.

BLOCK 1: ARTIFICIAL INTELLIGENCE

Unit 1: Introduction to Artificial Intelligence

What is intelligence? Foundations of Artificial Intelligence (AI). History of AI, Definition of AI.

Unit 2: Problem Solving in AI

Problem Solving- Formulating problems, problem types, states and operators, state space, search strategies.

Unit 3: Informed Search Strategies

Best first search, A* algorithm, heuristic functions.

Unit 4: Game playing

Perfect decision game, imperfect decision game, evaluation function, alpha-beta pruning.

Unit 5: Reasoning

Representation, Inference, Propositional Logic, predicate logic (first order logic), logical reasoning, forward chaining, backward chaining; AI languages and tools- Lisp, Prolog, CLIPS.

Unit 6: Planning

Basic representation of plans, partial order planning, planning in the blocks world, hierarchical planning, conditional planning, representation of resource constraints, measures, temporal constraints.

Unit 7: Uncertainty

Basic probability, Bayes rule, Belief networks, Default reasoning, Fuzzy sets and fuzzy logic; Decision making- Utility theory, utility functions, Decision theoretic expert systems.

Unit 8: Inductive Learning

Decision trees, rule-based learning, reinforcement learning, genetic algorithms;

Unit 9: Communication

Communication among agents, natural language processing.

BLOCK 2: MACHINE LEARNING

Unit 10: Introduction to Machine Learning

Definition of Learning systems; Goals and Applications of Machine learning, Aspects of developing a learning system, Training data, Problems, Data and Tools, Supervised Learning vs. Unsupervised Learning.

Unit 11: Classification

Probability and classification, Decision tree, Representing concepts as decision trees, Selection of the best splitting attributes.

Unit 12: Linear Regression

Simple regression Analysis, Multiple Linear Regression Model

Unit 13: Support Vector Machine

Support vector machines and large-margin classifiers, vector quantization.

Unit 14: Artificial Neural Networks

Neurons and biological motivation, Linear threshold Units, Perceptron: representational limitation and gradient decent training. Multilayer networks and backpropagation. Hidden layers constructing intermediate, distributed representations.

Unit 15: Clustering and Unsupervised Learning

Learning from unclassified data, Mixture densities, k-means clustering, partition-based clustering, hierarchical clustering.

References:

1. E. Rich and K. Knight, “Artificial intelligence”, Tata Mc Graw Hill Publications
2. N.J. Nilsson, “Principles of AI”, Narosa Publ. House Publications
3. Alex Smola and S.V.N. Vishwanathan,” Introduction to Machine Learning”, Cambridge University Press 2008.
4. Andreas C. Müller and Sarah Guido,” Introduction to Machine Learning with Python: A Guide for Data Scientists”, O'Reilly Media, Inc,2016.
5. S. Russel and P. Norvig, “Artificial Intelligence: A Modern Approach”, Third Edition, Prentice Hall, 2009.
6. C. M. Bishop, “Pattern Recognition and Machine Learning”, Springer, 2007.

Syllabus of Minor Courses

SEMESTER I: COMPUTER FUNDAMENTALS

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objectives:

- To provide learners the knowledge of computers, its different generations and applications
- To provide learners the knowledge of different components of computers, memory and operating system
- To familiarize students in using algorithms, flowcharts and pseudocodes to solve problems
- To provide knowledge of cybercrimes, computer security threats and protection mechanisms

Course Outcome:

On completion of this course, the learners will be able to:

- describe components of computers, types of computer memory and different operating systems
- describe the different types of buses and instruction formats
- use algorithms, flowchart and pseudocode to solve problems
- describe computer security issues and explain different types of cyber crimes

Unit 1: Introduction to Computer

Computer– a Definition; Characteristics of Computer; Generations of Computers; Structural Evolution of Computers; File Structure of Computers; Flynn's Classification of Computer Architecture; Applications of Computer: Advantages of Computer

Unit 2: Basic Features of Computer Classification

Computer Classification based on Operating Principles: Analog Computers, Digital Computers, Hybrid Computers; Computer Classification based on Applications: General Purpose Computers, Special Purpose Computers; Computer Classification based on Size and Capability: Micro Computers, Mini Computers, Mainframe Computers, Super Computers

Unit 3: Basic Components of Computer

Concept of Bit and Byte; Block Diagram of Computer, CPU,ALU, CU; Computer Memory: Primary and Secondary; Input/Output Devices; Buses : Address, Data, Control.

Unit 4: Computer Memory and Storage

Memory Representations; Memory Hierarchy; CPU Registers; Primary Memory: Random Access Memory, Read Only Memory; Secondary Memory; Cache Memory; Virtual Memory

Unit 5: Buses

Bus Structure- Address, Data and Control Bus, Different types of Buses–ISA, PCI, EISA, VESA, MCA, CA

Unit 6: Introduction to System Software

Compiler, Assembler, Linker, Loader and Editor

Unit 7: Instruction Types

Different Types of Instruction format (8 bit, 16 bit), Bit manipulation, Control, Data Transfer Instruction

Unit 8: Basics of Operating Systems

Functions of OS, Types of OS, DOS, LINUX (Single User, Multiuser), UNIX, ZENIX, WINDOWS, Multiprocessing OS, Time sharing OS

Unit 9: Computer Languages
Concepts of Machine level, Assembly level and High-level language; Basic difference between Procedure Oriented Language and Object-Oriented Language;
Unit 10: Introduction to Algorithms and Flowchart
Introduction to Algorithm, Flowchart, Pseudo code, Examples of algorithm and flowchart for simple problems.
Unit 11: File Structure
Data and Information, Records and its types, Files, Operations on Files
Unit 12: Computer Security
Computer Virus, Worm, SpyWare, Malware, Trojan Horse, Antivirus Software
Unit 13: Basics of Cyber Crimes I
Cyber Crimes against Individuals, Institution and State, Hacking, Digital Forgery, Identity Theft and Fraud.
Unit 14: Basics of Cyber Crimes II
Cyber Stalking/Harassment, Cyber terrorism, Cyber Defamation, Software Piracy, Different offences under IT Act, 2000

References:

1. P. K. Sinha & Priti Sinha , "Computer Fundamentals", BPB Publications, 2007.
2. Dr. Anita Goel, "Computer Fundamentals", Pearson Education, 2010.

SEMESTER II: FUNDAMENTALS OF PC SOFTWARE

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 50)**

Course Objectives:

- To provide learners the knowledge of operating systems and using DOS operating system
- To provide learners the knowledge of using both Microsoft and Linux operating systems
- To familiarize students in usage of LibreOffice Writer and Calc.
- To familiarize students in usage of LibreOffice Impress and Base.

Course Outcome:
On completion of this course, the learners will be able to:

- use DOS operating system
- use Microsoft Windows and Linux operating system
- use LibreOffice Writer and Calc to create documents and worksheets
- use LibreOffice Impress and Base to create presentations and tables, queries and forms.

Unit 1: Introduction to OS
Definition and functions of an Operating System, Types of OS (Single User, Multi user, Single tasking, Multitasking, Real time, Network OS, Distributed OS)
Unit 2: MS DOS Operating System
Introduction to DOS, System files of DOS, concept of Booting, Files and Directory Structure, Concept of Paths, Internal and External commands, Batch File.
Unit 3: MS Windows Operating System
Introduction to Windows, Components of Windows, Customizing the Desktop, Files and Folders.

Unit 4: LINUX Operating System

Open Source and Free Software, Advantages and Disadvantages of Linux Operating System, Concept of Path, Basic Linux Commands, File Permission, Text Editor vi.

Unit 5: Introduction to LibreOffice

Overview of LibreOffice software suite and its features, Advantages of using LibreOffice as an alternative to proprietary software, Installation and configuration of LibreOffice on different platforms

Unit 6: Getting started with Writer

Launching Writer and creating a new document, Navigating the Writer interface and understanding the different components of the document window, Entering and formatting text, applying font styles, and working with paragraphs, Saving, closing, and opening existing documents in different formats

Unit 7: Working with templates and styles in Writer

Creating and using document templates for consistent formatting and layout, Creating and modifying paragraph and character styles for consistent text formatting, Managing styles in the Styles and Formatting dialog box

Unit 8: Formatting documents in Writer

Adding and formatting images, tables, and other objects in a document, Applying advanced formatting options, such as page borders, columns, and page backgrounds, Using Writer's built-in tools for spell-checking, grammar-checking, and language translation

Unit 9: Introduction to Calc

Overview of Calc and its features as a spreadsheet program, Launching Calc and creating a new spreadsheet, Navigating the Calc interface and understanding the different components of the worksheet window, Entering and formatting data, applying cell formatting, and working with formulas

Unit 10: Working with functions and formulas in Calc

Using built-in functions and formulas for common calculations in Calc, creating custom functions and formulas for complex calculations, Using conditional formatting to highlight data based on certain criteria

Unit 11: Advanced formatting and charting in Calc

Applying advanced formatting options, such as conditional formatting, data validation, and custom number formats, Creating and modifying charts to visualize data in different ways, Using Calc's built-in tools for filtering, sorting, and analyzing data

Unit 12: Introduction to Impress

Overview of Impress and its features as a presentation program, Launching Impress and creating a new presentation, Navigating the Impress interface and understanding the different components of the slide window, Adding and formatting slides, applying transitions, and customizing presentation settings

Unit 13: Working with multimedia and animations in Impress

Adding images, audio, and video to a presentation, Creating and modifying animations to enhance visual effects, Using Impress's built-in tools for recording and rehearsing presentations

Unit 14: Introduction to Base

Overview of Base and its features as a database management tool, Launching Base and creating a new database, Navigating the Base interface and understanding the different components of the database window, Creating tables, forms, queries, and reports using Base's built-in tools

References:

1.https://documentation.libreoffice.org/assets/Uploads/Documentation/en/GS7.0/GS70-GettingStarted.pdf

SEMESTER III: FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEM

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 70)**

Course Objectives:

- To provide learners knowledge of database architecture, data models and relational model
- To provide learners knowledge of functional dependencies and normalization
- To familiarize learners with SQL programming to create, alter and delete data and tables
- To provide learners knowledge of using GUI and connecting to a database

Course Outcome:

On completion of this course, the learners will be able to:

- describe the database architecture, data models and relational model
- explain functional dependencies, normalization and the different types of keys
- use SQL to create, modify, delete tables and databases and write queries and subqueries
- use WAMP and phpMyAdmin

UNIT 1: File Structure

Data and Information, Concept of Field, Key field; Records and its types, Fixed length records and Variable length records; Files, Operation on files, Primary file organization

UNIT 2: Database System

Traditional file approach versus Database approach; Data independence, Database System, Database Architecture, The three level of architecture, Mapping, Database administrator, Database Management system, Types of DBMS, Merits and demerits of DBMS

UNIT 3: Data Models

Conceptual model, Logical model, Physical model, Entity-Relationship (ER) model as a tool for conceptual design: Entities, Attributes and Relationships, Weak and Strong entities, Conversion of ER model into Relational schema, ER modelling symbols.

UNIT 4: The Relational Model

Relational data model concepts, Integrity constraints: Entity integrity, Referential integrity, Domain Constraints.

UNIT 5: Keys

Concept of keys, Composite key, Candidate key, Primary key, Alternate key, Foreign key, Defining Primary and Foreign keys in Database.

UNIT 6: Relational Database Design

Database Design, Decomposition, Universal Relation, Functional Dependencies, Prime and Non-prime attributes.

UNIT 7: Normalization

Normalization, First Normal form (1NF), Second Normal form (2NF), Third Normal form (3NF), Boyce-Codd Normal form (BCNF)

UNIT 8: Introduction to SQL

Structured Query Language (SQL), Characteristics of SQL, Advantages of SQL, SQL Data types, Types of SQL commands, DDL, DML.

UNIT 9: Working with SQL Part I

Creating a Database, Creating, Altering, and Deleting Tables, Inserting new data, Updating data (the WHERE Clause, The Logical AND and OR operator), Deleting Data.

UNIT 10: Working with SQL Part II

The SELECT statement, Filtering results with the WHERE Clause; Logical Operators and Operator Precedence (Using logical operator NOT, BETWEEN, LIKE, IN); Ordering Results with ORDER BY (Joining columns-concatenation); Selecting data from more than one table.

UNIT 11: Working with SQL Part III
Join, Types of Join, SQL commands: Select… From…Where… Group by ….. Having… Order by…, Tables, Queries, Sub Queries, Insert, Update and Delete operations, Constraints considers (NOT NULL, UNIQUE, Check Primary key, Foreign key)
UNIT 12: Working with GUI
Introduction to WAMP, Installation of WAMP, Working with phpMyAdmin.
UNIT 13: Database Recovery
Concept of database recovery, Backup of database, Types of database failure, Types of database recovery.
UNIT 14: Database Security
Goals of database security, Discretionary Access Control, Mandatory Access control, Statistical Databases, Data Encryption.

References:

1. Elmasri, R., Navathe, S. B., Elmasri, R., & Navathe, S. B. (2000). *Fundamentals of Database Systems.* Addison-Wesley.
2. Ramakrishnan, R., Gehrke, J., & Gehrke, J. (2003). *Database management systems* (Vol. 3). New York: McGraw-Hill.
3. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2011). Database system concepts.
4. Schwartz, B., Zaitsev, P., & Tkachenko, V. (2012). *High performance MySQL: optimization, backups, and replication*. " O'Reilly Media, Inc.".

SEMESTER IV: OPEN SOURCE SOFTWARE

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 70)**

Course Objectives:
- To provide the knowledge of using open-source packages LaTeX, Scilab, and Python with their applications.
- To provide a clear understanding of the basics of technical writing which will enable the learners to communicate their ideas effectively in the form of technical reports, journal papers etc., by using the technical writing tool LaTeX.
- To provide the knowledge of the Scilab environment and programming language.
- To get introduced to basics Python.

Course Outcome:
On completion of this course, the learners will be able to:

- understand the installation of various open-source packages like LaTeX, Scilab, and Python.
- format documents, typeset journal articles, reports, books, and slide presentations in Latex
- use Scilab environment to plot functions and data
- write code to solve simple problems in Python.

Unit 1: Installation to LaTeX
Installation of LaTeX, Understanding Latex compilation
Unit 2: Introduction of LaTeX
Basic Syntax, Writing equations, Matrix, Tables
Unit 3: Page Layout – I
Page Layout – Titles, Abstract Chapters, Sections, References, Equation references, Citation, Table of contents
Unit 4: Page Layout – II
List making environments, Generating new commands, Figure handling, table & figure numbering, List of figures, List of tables, Generating index
Unit 5: Packages
Packages: Geometry, Hyperref, amsmath, amssymb, algorithms, algorithmic graphic, color, tilez listing
Unit 6: Classes
Classes: article, book, report, beamer, slides, letter
Unit 7: Applications of LaTex
Applications: Writing Resume, Writing question paper, Writing articles/ research papers, Presentation using beamer, inserting graphics, drawing graphics, putting equations
Unit 8: Installation of Scilab
Installation of Scilab (both windows & Linux)
Unit 9: Introduction to Scilab
Introduction to Scilab, Basic syntax, Mathematical Operators, Predefined constants, Handling .sci files, Installation of additional packages e.g. optimization
Unit 10: Functions in Scilab
Built in functions, Complex numbers, Polynomials, Vectors, Matrix operations (functions like inv(), spec(), zeros(), ones(), eye(), rand(). Handling these data structures using built in functions.
Unit 11: Conditional Statements in Scilab
Loops (for & while), Conditional statements
Unit 12: Graphics in Scilab
Graphics handling: 2D, 3D, Generating .jpg files, Function plotting, Data plotting, GUI in scillab, Plotting 2D graphs
Unit 13: Applications of Scilab
Applications: Numerical Linear Algebra (Solving linear equations, eigen values atc.) solving Ordinary Differential Equations, Numerical Analysis – iterative methods, Comparison with C/C++/Matlab
Unit 14: Introduction to Python
Introduction to Python, Procedure to install Python, How to open Python console, Basic Python commands, Python programming.

References:

1. Kopka, H., Daly, P. W., & Rahtz, S. P. Q. (2004). *Guide to LATEX* (Vol. 4). Boston, MA: Addison-Wesley.
2. Ramchandran, H., & Nair, A. S. (2012). *Scilab (a Free Software to Matlab)*. S. Chand Limited.
3. The Python Tutorial — Python 3.11.2 documentation

SEMESTER V: FUNDAMENTALS OF WEB TECHNOLOGY

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 70)**

Course Objectives:

- To familiarize learners with Internet and its related topics
- To provide the knowledge of HTML programming
- To provide the knowledge of CSS
- To train a learner, so that he/she can create a simple website

Course Outcome:

On completion of this course, the learners will be able to:

- describe basic concepts related to the Internet, WWW and various protocols associated with email, file transfer etc.
- describe various tags used in HTML for web page design
- explain the use of CSS with HTML
- design a website

Unit 1: Basics of Internet and Web

Basics of Internet, World Wide Web, Web page, Home page, Web site, Static, Dynamic and Active web page, Overview of Protocols – Simple Mail Transfer Protocol, Gopher, Telnet, Emails, FTP, Hypertext Transfer Protocol, Client server computing concepts, MIME, Web Surfing

Unit 2: Web Client

Web Browser, Browsers e.g., Google Chrome, Microsoft Edge etc, Client-Side Scripting Languages-VB Script and Java Script, Active X control and Plug-ins

Unit 3: Web Server

Web Server Architecture, Image maps, CGI, API web database connectivity-DBC, ODBC, Proxy Server

Unit 4: Introduction to HTML

HTML markup, History of HTML, Use of HTML, tags, elements, attributes, creating HTML text using Notepad, Standard HTML document structure format

Unit 5: HTML Formatting-I

The browser as formatter, comment, Paragraph, line break, preformatting, heading, horizontal rules, meta tags, HTML styles, Working with other HTML formatting elements

Unit 6: HTML Formatting-II

Working with colors, hyperlink, images, lists, tables

Unit 7: HTML iframes

Iframe syntax, setting height and width, removing the border, target for a link, case studies

Unit 8: HTML Class and ID

Class attribute, syntax for class, multiple classes, id attribute, difference between class and id, HTML Bookmarks with ID and Links

Unit 9: HTML Layout and Responsive

HTML layout, HTML responsive, HTML emojis

Unit 10: HTML Forms

HTML Forms, HTML Form Attributes, HTML Form Elements, HTML Input Types, HTML Input Attributes, HTML Input Form Attributes.

Unit 11: HTML Media

HTML Media, Video, Audio, Plug-ins, YouTube

Unit 12: Working with CSS-I

Definition, Use of CSS, Types of CSS with examples

Unit 13: Working with CSS-II
Working with internal CSS, inline CSS, external CSS
Unit 14: Case Studies
Creating a simple website using HTML and CSS

References:

1. Duckett, J., & Schlüter, J. (2011). *HTML and CSS*. Wiley.
2. Duckett, J. (2011). *Beginning html, xhtml, css, and javascript*. John Wiley & Sons.

SEMESTER VI: DIGITAL MARKETING

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objectives:
- To explain about different digital marketing strategy
- To identify how to create effective digital content that engages and informs customers, including the use of video, images, and written content
- To utilize digital advertising tools
- To identify latest trends and developments in digital marketing

Course Outcome:
On completion of this course, the learners will be able to:
- create and execute effective digital marketing campaigns
- explain data analytics and measurement
- analyze and interpret digital marketing data
- to effectively manage a digital marketing budget

Unit 1: Basics of Digital Marketing
Definition; Importance of Digital Marketing; working of digital marketing; advantages of digital marketing over traditional marketing; types of digital marketing
Unit 2: Keyword Research
Understanding keyword and its types; keyword research: tools for keyword research, localized keyword research; analysis of competitor website keyword; finalizing keyword for a project.
Unit 3: Website Planning
Importance of Domain name and domain extension; types of website: based on functionality and purpose; Planning of website design: content, plugin, engagement options; landing page and optimization.
Unit 4: Search Engine Optimization
Introduction to search engine and how it works; Concept of search engine optimization; Understanding the Search Engine Results Page; indexing; crawling
Unit 5: Social Media Marketing
Understanding social media and its marketing tools: paid marketing, organic marketing; Social Media optimization, Understanding marketing through Facebook, Instagram, YouTube, Google
Unit 6: Google mapping and Local Business
Listing of local in search engine; Image, video and Map setup in google places; visibility report of search engine and google reviews.
Unit 7: Google Analytics
Introduction and working of Google Analytics; Google analytics- account structure, insights, cookie

training; setting up analytics account; how to add google analytics in website

Unit 8: WhatsApp Marketing

Understanding WhatsApp Marketing; WhatsApp push notification; WhatsApp Business; tools and settings in WhatsApp business; Limitations of WhatsApp

Unit 9: Facebook marketing

Introduction to Facebook-insights, algorithm; Understanding Facebook ads- organic and paid, targeting option; Facebook page management

Unit 10: Twitter Marketing

Introduction to Twitter Marketing; Twitter marketing insights- dos and don'ts; Ad Content and targeting; fundamental of Influencer marketing; use of hashtags, tools

Unit 11: Instagram Marketing

Introduction to Instagram platform. Creation of Business page in Instagram; Marketing tools and Ads; Drive engagement and Lead generation; account switching

Unit 12: YouTube Marketing

Channel creation in YouTube; Uploading video and optimization; Video creation and story lineup; monetization of YouTube Channel; Case study

Unit 13: E-commerce marketing

E-commerce website and its advantages; marketing concept; Motivating shopping for online; affiliation marketing

Unit 14: Social Media Automation

Social Media automation- tools and process; Automatized report, analytics, best time to share; Rules related to automation

Unit 15: Google Ad Sense and AdWords

AdSense and process of earning through it; process of approval of AdSense; Placing Ads in website; AdWords and Ad placement; approval for AdWords; how to get Ads in Blog/YouTube

References:

1. Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing*. Pearson uk.
2. Ryan, D. (2016). *Understanding digital marketing: marketing strategies for engaging the digital generation*. Kogan Page Publishers.
3. Kingsnorth, S. (2022). *Digital marketing strategy: an integrated approach to online marketing*. Kogan Page Publishers.
4. Charlesworth, A. (2014). *Digital marketing: A practical approach*. Routledge.

SEMESTER VII: DIGITAL FLUENCY

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 70)**

Course Objectives:

- To familiarise learners to various eLearning and MOOCs Platforms and provide the working knowledge of various searching techniques and services provided by Google
- To give learners the concepts of various E-Payment methods
- To familiarise the learners with various video conferencing tools and proper handling of various social networking platforms
- To familiarize learners with concepts and applications of Artificial Intelligence, Machine Learning, Internet of Things, Cloud Computing, Big Data, e-Governance and Blockchain Technology.

Course Outcome:

On completion of this course, the learners will be able to:

- understand the concept of eLearning and various eLearning platforms
- demonstrate how to create and work with email through Gmail, prepare and share documents through google docs, google sheets and manage and share files in google drive
- handle various E-payment method, e-Governance applications and social networking sites in a proper way
- understand the concepts and applications of Artificial Intelligence and Machine Learning, Internet of Things, Cloud Computing, Big Data and Blockchain technologies

Unit 1: Introduction to eLearning

Definition, Asynchronous/Synchronous Learning, e-learning Platforms: Proprietary and open source, Learning Management System (LMS), MOOCs: definition, various MOOC platforms like SWAYAM, Coursera, Edx, Audacity, FutureLearn etc.

Unit 2: Searching Techniques

Search Engines, Searching Techniques; Google, Bing, Advanced Search Options in Google, Translator: Google, Bing

Unit 3: Working with Google Services I

Working with Gmail, Google Docs: creating and posting; Google Sheets: creating and editing; Google Drive: uploading and sharing of files and folders.

Unit 4: Working with Google Services II

Google Forms: Creating and analysis of response; Google Voice Assistant; Google Classroom: Creating classroom, Taking class etc.

Unit 5: E-payment methods

E-cash Payment System, Credit Payment system, E-Check, Concept of OTP and uses, Concept of QR code and uses, Overview of Smart Card; Types of Electronic Payment Systems: Credit Card, Debit Card, Smart Card, E Money, Electronic Fund Transfer (EFT), UPI, Google Pay, BHIM etc.

Unit 6: E-commerce

Introduction, Types of E-commerce, Applications of E-commerce with examples.

Unit 7: Video Conferencing Tools

Introduction, Working with various video conferencing tools like Google Meet, Zoom, WebX, Microsoft Teams, etc.

Unit 8: Working with Social Networks

Introduction, Working with various Social Networking Sites like WhatsApp, Youtube, Telegram, Facebook, Twitter, Skype, Instagram etc.

Unit 9: Introduction to Artificial Intelligence and Machine Learning

Definition of Artificial Intelligence (AI); Brief history of AI; Types/Categories of AI; Applications of AI: Healthcare, Agriculture, Education etc.; Machine Learning: definition, Supervised learning, Unsupervised learning; Introduction to Industry 4.0 and applications, Introduction to Education 4.0. and applications

Unit 10: Introduction to IoT

Definition, basic concepts of IoT and its applications like Smart Home, Smart vehicles, IoT in Agriculture.

Unit 11: Introduction to Cloud Computing

Cloud Computing: Definition; Types of Cloud: Public cloud; Private cloud; Hybrid cloud; CommUnity cloud; Types of Cloud services: Infrastructure as a Service (IaaS), Platform as a Service (IaaS) and Software as a Service (SaaS), Applications of Cloud Computing

Unit 12: Introduction to Big Data

Big Data: Definition, Characteristics, Types of Big Data: Structured, Un-structured, Semi-structured; Apache Hadoop; Big Data Platforms, Applications of Big Data

Unit 13: E-Governance and Application

E-Governance Models: (G2B,G2C,C2G,G2G), Challenges to E-Governance, Strategies and tactics for implementation of E-Governance, Applications of E-Governance

Unit 14: Blockchain Technology
Introduction to Blockchain Technology and its Importance, Evolution of the Blockchain Technology, Elements of a Blockchain, Blockchain Applications

References:

1. Gerald Knezek and Rhonda Christensen. *Digital Fluency: Skills Necessary for Learning in the Digital Age*
2. Kristin Fontichiaro. *Teaching Digital Fluency: How do we Prepare Students for the Future?*

SEMESTER VIII: FUNDAMENTALS OF PYTHON PROGRAMMING

Course Type:	**Minor**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 20, Practical: 30, Summative: 70)**

Course Objectives:
- To get introduced to Python programming.
- To provide the concept of flow control, functions and its implementation in Python.
- To provide the ability to design object – oriented programs with Python.
- To provide the knowledge of file processing in Python.

Course Outcome:
On completion of this course, the learners will be able to:

- learn Python installation, Anaconda installation and work with Google Colab, Jupyter Notebook, and Spyder.
- define and demonstrate the use of built-in data structures like lists, tuples and dictionary
- use functions and modules in Python programming.
- design object- oriented programs and to handle files in Python.

Unit 1: Installation of Python
Python Installation, Working with Google Colab, Anaconda Installation, Working with Jupyter Notebook, Spyder
Unit 2: Introduction to Python
Python, Python Interpreter, Using Python as calculator, Python shell, Indentation.
Unit 3: Python Basics
Atoms, Identifiers and keywords, Literals, Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment operator, Bit wise operator, Identity and Membership operator.
UNIT 4: Strings
Strings, String properties, Built-in functions, String Methods, String Conversions, String Comparisons.
UNIT 5: Decision Control Statements
Input and Output Statements, Control statements, Conditional Statements- if...else, Nested if statements, Ternary Operators.
UNIT 6: Loop Control Statements
Looping- while Loop, for Loop, Loop Control, break, continue and pass.
UNIT 7: Lists
Lists, Accessing List elements, looping in Lists, Basic List operations, Using built-in functions on Lists, List methods, Sorting and reversing.
UNIT 8: Tuples
Tuples, accessing tuple elements, looping in tuples, basic tuple operations, using built-in functions on

Tuples, Tuple methods, Tuple varieties

UNIT 9: Sets

Definition of set, accessing set elements, looping in sets, basic set operations, Sets, Sets Methods and Functions.

UNIT 10: Dictionaries

Dictionary, definition of dictionaries, accessing dictionary elements, looping in dictionaries, basic dictionary operations.

UNIT 11: Functions

Functions: Definition, call, positional and keyword parameter. Default parameters, variable number of arguments.

UNIT 12: Modules

Modules: import mechanisms, Functional programming: map, filter, reduce, max, min. lambda function.

UNIT 13: Object Oriented Programming

Object Oriented Programming, Definition of Classes and Objects, Python Inheritance, Different types of Inheritance with examples.

UNIT 14: File Processing

File Processing: reading and writing files, manipulating file pointer using seek

References:

1. Budd, T. (2010). *Exploring Python*. McGraw Hill Higher Education.
2. The Python Tutorial — Python 3.11.2 documentation
3. Wentworth, P., Elkner, J., Downey, A. B., & Meyer, C. (2015). How to think like a computer scientist: Learning with Python 3.

SEMESTER VII: RESEARCH METHODOLOGY

Course Type:	**SEC**
Number of Credits:	**4**
Total Marks:	**100 (Formative: 30, Summative: 70)**

Course Objectives:

- To provide students with an understanding of the research process and the steps involved in conducting research, as well as the importance of research in computer science.
- To equip students with the skills and knowledge necessary to formulate research problems, develop research questions and hypotheses, and conduct a thorough literature review.
- To familiarize students with various research designs, sampling techniques, and data collection and analysis methods, and enable them to choose appropriate methods for their research projects. Additionally, students will learn how to interpret and present their research findings in a clear and effective manner.

Course Outcome:

After going through this unit, learner will be able to

- understand the importance of research in computer science and the various types of research that can be conducted.
- develop skills to identify research problems, formulate research questions and hypotheses, and conduct a literature review to support research.
- acquire knowledge on research design, sampling techniques, data collection methods, and data analysis techniques, and apply them to conduct and interpret research.

Unit 1: Introduction to Research Methodology
Definition and types of research, Importance of research in computer science, Research process and steps involved
Unit 2: Research Problem Formulation
Identifying research problems, Formulating research questions and hypotheses, Literature review and its significance
Unit 3: Research Design
Types of research designs, Choosing appropriate research design, Validity and reliability in research
Unit 4: Sampling Techniques
Types of sampling techniques, Sampling methods and their suitability, Sampling error and sample size determination
Unit 5: Data Collection Methods
Primary and secondary data collection methods, Survey, questionnaire, and interview methods, Data collection tools and techniques
Unit 6: Data Analysis Techniques
Quantitative data analysis techniques, Qualitative data analysis techniques, Statistical analysis and software packages
Unit 7: Interpretation of Results
Interpreting quantitative and qualitative data, Drawing conclusions and making recommendations, Presenting results in written and graphical form
Unit 8: Writing a Research Proposal
Components of a research proposal, Writing a proposal for a research project, Guidelines for research proposal writing
Unit 9: Ethics in Research
Ethical considerations in research, Institutional review board (IRB) and its role, Ethical guidelines for research
Unit 10: Research Report Writing
Structure and format of research reports, Preparing a research report, Writing skills for research reports
Unit 11: Presentation Skills
Oral presentation skills, Visual aids for presentation, Effective communication skills
Unit 12: Project Management
Planning and managing research projects, Time management techniques, Resource allocation and budgeting
Unit 13: Case Study Research
Definition and characteristics of case study research, Types of case studies, Analyzing case study data
Unit 14: Experimental Research
Definition and characteristics of experimental research, Types of experimental research, Conducting and analyzing experimental research

References:
1.Research Methodology: A Step-by-Step Guide for Beginners by Ranjit Kumar
2.Research Methods in Computer Science by Erika Ábrahám, Catuscia Palamidessi, and Ana Sokolova

SEMESTER VII: SEMINAR

Course Type:	**SEMINAR**
Number of Credits:	**4**
Total Marks:	**100**

Guidelines for presenting seminar paper

1. Choose a topic: The first step is to choose a topic for your seminar paper presentation. The topic should be relevant to your BCA program and should be something that you are interested in researching.

2. Research your topic: Once you have chosen your topic, you need to research it thoroughly. Use academic sources such as journals, books, and reputable websites to gather information.

3. Create an outline: Create an outline of your seminar paper presentation. This should include an introduction, a literature review, methodology, findings, discussion, and conclusion.

4. Prepare your slides: Once you have created an outline, prepare your slides. Your slides should be easy to read and should contain bullet points and visuals to help your audience understand your presentation.

5. Start with an introduction: Begin your presentation with a brief introduction to your seminar paper topic, including its relevance and significance to the field of computer applications.

6. Use visuals: Use visuals like charts, diagrams, and graphs to help illustrate the concepts you are presenting. This will make your presentation more engaging and easier to understand.

7. Be concise: Make sure to be concise and clear in your presentation, avoiding unnecessary jargon or technical terms that your audience may not be familiar with.

8. Explain technical terms: If you must use technical terms, make sure to explain them in simple language that your audience can understand.

9. Practice your delivery: Practice your presentation beforehand so that you are comfortable with your delivery and can maintain eye contact with your audience.

10. Engage with your audience: Encourage questions and engagement from your audience throughout your presentation, and be prepared to answer any questions they may have.

11. Conclude with a summary: Conclude your presentation with a brief summary of your key points and reiterate the main takeaways from your seminar paper.

By following these guidelines, you can deliver an effective and engaging seminar paper presentation for your BCA programme.

ANNEXURE III

PROJECT GUIDELINES FOR BCA PROGRAMME

SEMESTER VIII: PROJECT

Course Type:	**PROJECT**
Number of Credits:	**12**
Total Marks:	**200**

A. PROJECT GUIDE ELIGIBILITY CRITERIA:

Full Time Faculties in the Department of Computer Science/ Information Technology of KKHSOU/ Colleges/ Institutions affiliated to any Indian University recognized by UGC and having minimum 2 years teaching experience.

OR

A person having minimum M.Tech., MCA, M.Sc. in Computer Science/Information Technology from a UGC recognized university with 4 years of experience in IT sector.

B. TYPE OF PROJECT

Learner may choose any topic according to BCA standard. Most of the project work falls under the following types:

a. Database oriented (e.g. payroll system, Loan management system etc.)
b. Application oriented (e.g. Mobile apps development, web based development)
c. R & D project (e.g. Image processing, speech processing, data mining, networking, expert systems etc.)

C. PROJECT PROPOSAL (SYNOPSIS)

A project proposal or synopsis is a crucial framework that outlines the necessary details about a project. It provides a roadmap that helps project stakeholders understand the objectives, methodology, and expected outcomes of the project.

The necessary parts of a project proposal, as mentioned in the given format, help to structure the proposal and provide a comprehensive overview of the project.

i. Title of the Project: [Insert the title of your project here]

ii. Introduction and Objectives of the Project: [Provide a brief introduction to

your project and describe the objectives you aim to achieve through it.]

iii. Project Category: [Specify the category of your project - RDBMS, application development, research and development, etc.]

iv. Tools, Platform, Hardware and Software Requirement Specifications: [List the tools, platforms, hardware, and software required for carrying out your project.]

v. Whether the Project is Done for Any Industry/Client? The Name and Address of the Industry or Client is to be Mentioned: [Specify whether your project is being developed for a particular industry or client. If yes, mention the name and address of the industry or client.]

vi. Methodology and Expected Output: [Provide details of the methodology you will be using to carry out your project and describe the expected output.]

vii. Conclusion: [Summarize your project proposal and highlight its significance.]

Consultation with a project guide is crucial to ensure that the project proposal/synopsis meets the required standards and expectations. A project guide or supervisor has significant experience and knowledge in the respective field, and their feedback can help refine the proposal and identify any gaps or potential issues that need to be addressed before the project begins.

Moreover, project guides can provide valuable insights and feedback that can enhance the quality of the project and improve the chances of its success. Therefore, it's essential to involve your project guide from the outset and maintain regular communication throughout the project's lifecycle to ensure that it's on track and aligned with the overall objectives.

D. APPLICATION AREAS & RELATED TOOLS

The following is a list of application areas and related tools that can be considered for developing a project. The chosen area will depend on the project's objectives, scope, and requirements.

Applications Areas:

- Database Management System
- Computer Graphics
- Internet/ Intranet
- Computer Networking-Communication Software
- E-Commerce
- TCP/IP/Routing protocols

- Image processing
- Speech Processing
- Web Application Development
- Mobile application development etc.

Related Tools:

- **FRONT END / GUI Tools:** PHP, JavaScript, HTML, Scripting languages etc.
- **BACKEND:** Python, PHP, JavaScript etc.
- **RDBMS:** Oracle, MYSQL, No SQL, MongoDB etc.
- **LANGUAGES:** Python, Matlab, Scilab, C, C++, Java, C# etc.
- **INTERNET TECHNOLOGIES:** Java, Active X, SWING, JSP, ASP, PHP, XML etc.
- **OPERATING SYSTEMS:** WINDOWS/ LINUX /MAC OS/ANDROID.
- This comprehensive list covers a wide range of areas and tools that offer diverse opportunities for project development. However, the selection of a specific area and related tools will depend on the project's objectives and requirements.

E. PROJECT REPORT GUIDELINE

The Project report should be prepared in well-structured preferably typed in Latex. Depending on the type of project the report should be as follows:

(a) For Database project:

i. Declaration: This page should include a statement declaring that the work presented in the report is the student's original work.

ii. Certificate: This page should include a certificate from the institution confirming that the student has completed the project.

iii. Certificate from Guide: This page should include a certificate from the project guide confirming that the student has completed the project under their supervision.

CHAPTER I: INTRODUCTION

1.1 Brief idea about the project

1.2 Objective of the project

1.3 Scope of the project

1.4 Existing system

1.5 Proposed System

1.6 Platform used(Hardware & Software)

1.7 Project location

CHAPTER II: REQUIREMENT ANALYSIS

2.1 Introduction

2.2 Tools used for Requirement gathering

2.3 Problem in Existing System

2.4 Conclusion

CHAPTER III: LOGICAL DESIGN

3.1 Introduction

3.2 DFD (0^{th}, 1^{st}, 2^{nd} level)

3.3 ER diagram

3.4 Use case diagram

3.5 Activity diagram

3.6 Conclusion

CHAPTER IV: PHYSICAL DESIGN

4.1 Introduction

4.2 Database Design (Give your normalized database here)

4.3 Module design

4.4 Input/output design

4.5 Conclusion

CHAPTER V: IMPLEMENTATION

5.1 Introduction

5.2 Process description (if any)

5.3 Output & Report

5.4 Conclusion

CHAPTER VI: TESTING

6.1 Introduction

6.2 Types of testing performed

6.3 Conclusion

References Appendix (if any)

(b) **R & D/ Application project**:

- Acknowledgement
- Content with page number
- Declaration Certificate
- Certificate from Guide

CHAPTER I: INTRODUCTION

1.1 Brief idea about the project

1.2 Objective of the project

1.3 Scope of the project

1.4 Application of the project

1.5 Proposed System

1.6 Platform used(Hardware & Software)

1.7 Project location

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

2.2 Work already done in the area(Historical evidence)

2.3 Problem in Existing technology

2.4 Conclusion

CHAPTER III: THEORITICAL BACKGROUND

3.1 Introduction

3.2 Theory used in the project

3.3 Conclusion

CHAPTER IV: RESULT AND DISCUSSION

4.1 Introduction

4.2 Methodology

4.3 Result

4.4 Analysis on result

4.5 Conclusion

CHAPTER V: Conclusion & Future work

5.1 Introduction

5.2 Chapter wise conclusion

5.3 Future work

References Appendix (if any)

CERTIFICATE OF ORIGINALITY FROM THE PROJECT SUPERVISOR

This is to certify that the project report entitled .....
....
submitted to **Krishna Kanta Handiqui State Open University** in partial fulfilment of the requirement for the award of the degree of **BACHELOR OF COMPUTER APPLICATIONS (BCA),** is an original work carried out by Mr./Ms..... **Enrolment No.:** ..... under the supervision of Dr./Mr./Ms.....

The matter embodied in this project is a genuine work done by the student and has not been submitted either to this University or to any other University/Institute for the fulfilment of the requirement of any course of study.

Signature of the Learner

Name:
Address:
Enrolment No.:

Signature of the Project Supervisor

Name:
Designation:
Address

Study Centre's Seal

FORMAT OF THE PROJECT REPORT

A Project Report on

TITLE OF THE PROJECT

In fulfillment of the requirement for
BACHELOR OF COMPUTER APPLICATIONS
Programme

Submitted by
.....
(Name of the Learner)
Enrollment No.: .....
Session: .....

Under the Guidance of
.....
(Name of the Project Supervisor)

Study Centre
.....
(Name of the Study Centre)
.....
(Location)

Font type: Arial
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Font type: Arial

ANNEXURE IV

Course wise Faculty coordinators of BCA Programme (DSC, Minor and SEC)

Semester	Title of the Course	School	Discipline	Faculty/Course Coordinator
Semester 1	DSC 1: Computer Fundamentals and PC Software	HCBSST	Computer Science	Mr. Harekrishna Deka
	Minor 1: Computer Fundamentals	HCBSST	Computer Science	Mr. Harekrishna Deka
Semester 2	DSC 2: Digital Techniques	HCBSST	Computer Science	Dr. Nabankur Pathak
	Minor 2: Fundamentals of PC Software	HCBSST	Computer Science	Mr. Harekrishna Deka
Semester 3	DSC 3: Programming in C	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 4: Computer Organization and Architecture	HCBSST	Computer Science	Dr. Nabankur Pathak
	Minor 3: Fundamentals of Database Management Systems	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	SEC: Cyber Security	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
Semester 4	DSC 5: Data Structure through C Language	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
	DSC 6: Object-Oriented Programming through C++	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 7: Data Communication and Computer Network	HCBSST	Computer Science	Dr. Nabankur Pathak
	Minor 4: Open Source Software	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
Semester 5	DSC 8: Database Management Systems	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 9: Operating System	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
	DSC 10: Mobile Application Development	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	DSC 11: Linux System Administration	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	Minor 5: Fundamentals of Web Technology	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
Semester 6	DSC 12: Computer Graphics	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 13: Software Engineering	HCBSST	Computer Science	Dr. Nabankur Pathak

	DSC 14: Web Technology	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	DSC 15: Introduction to Python Programming	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
	Minor 6: Digital Marketing	HCBSST	Computer Science	Dr. Nabankur Pathak
Semester 7	DSC 16: Full Stack Development	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	DSC 17: Introduction to Image Processing	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 18: Data Mining and Data Warehousing	HCBSST	Computer Science	Dr. Sruti Sruba Bharali
	Minor 7: Digital Fluency	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
Semester 8	DSC 19: Open Source Software	HCBSST	Computer Science	Dr. Tapashi Kashyap Das
	DSC 20: Fundamentals of Artificial Intelligence and Machine Learning	HCBSST	Computer Science	Dr. Ridip Dev Choudhury
	Minor 8: Fundamentals of Python Programming	HCBSST	Computer Science	Dr. Sruti Sruba Bharali

Annexure IV

Common Basket of Interdisciplinary Courses (IDC), Ability Enhancement Courses (AECs). Value Added Courses (VACs) and Skill Enhancement Courses (SECs)

Along with Detailed Syllabus

List of Courses Semester-wise

Semester	Course Type	Course Name
I	**IDC** (any one course needs to be selected from the basket)	101 Functional Assamese* *(open to all except those with Assamese as major or minor)*
		102 Reading and Writing Skills*
		103 Media Studies*
		104 Distance Education *(open to all except those with Education and Sociology as major or minor)*
		105 Constitution of India *(open to all except those with Political Science as major or minor)*
		106 Economy of the North East India *(open to all except those with Economics as major or minor)*
		107 Understanding Indian Society *(open to all except those with Sociology as major or minor)*
		108 Introduction to Indian History *(open to all except those with History as major or minor)*
	AEC	101 General English*
	VAC	101 Environmental Studies and Disaster Management*
	SEC (any one Course only)	101 Office Management*
		102 Organic Farming*
		103 Introduction to Geo-informatics*
II	**IDC** (any one course needs to be selected from the basket)	201 Select Assamese Literary Texts*
		202 General Principles of Writing*
		203 Environmental Education *(open to all except those with Education as major or minor)*
		204 Issues in Development Communication*
		205 Perspectives on Indian Economy *(open to all except those with Economics as major or minor)*
		206 Introduction to Ethics *(open to all except those with Philosophy as major or minor)*
		207 Understanding Social Problems *(open to all except those with Sociology as major or minor)*
		208 Introduction to History of Assam *(open to all except those with History as major or minor)*
	AEC (any one Course only)	201 MIL Assamese*
		202 Alternative English*
		203 MIL Bengali*
		204 MIL Hindi*
		205 MIL Bodo*
	VAC	201 Introduction to Yoga*

	SEC (any one Course only)	201 Tea Cultivation and Management*
		202 Electricity and Electrical Wiring*
III	**IDC** (any one Course needs to be selected from the basket)	301 English for Professional Studies*
		302 Economics of Education* *(open to all except those with Education as major or minor)*
		303 Business Communication and Media Management*
		304 Understanding North East India *(open to all except those with Sociology s as major or minor)*
		305 Rural Development in India *(open to all except those with Economics as major or minor)*
		306 Essentials of Indian Philosophy *(open to all except those with Philosophy as major or minor)*
	AEC	301 Life Skills*
	SEC	301 Cyber Security*
IV	**AEC** (any one Course only)	401 Studies of Assamese Culture* *(open to all except those with Assamese as major or minor)*
		402 Spoken English*
		403 English for Media Studies*
VII	**SEC**	701 Research Methodology

*Note: All Courses marked by * are open to all irrespective of Choices of Major and Minor Subjects*

Detailed Syllabi of Interdisciplinary Courses (IDCs)

IDC 101 Functional Assamese

Course Objective:

After going through this course, a learner will be able to:

- Achieve a clear view of the Assamese Grammar.
- Familiar with the writing style of Assamese language.

Course Outcomes:

- Develop the ability to write in the Assamese language.
- Make use of Assamese grammar and style of writing.

Syllabus

অধ্যায় ১ : **অসমীয়া ভাষাৰ ব্যাকৰণৰ কেইটামান বিশেষ দিশ —১**

আখৰ, ধ্বনি আৰু বৰ্ণ/আখৰ, বৰ্ণ আৰু ধ্বনিৰ সম্পৰ্ক, অসমীয়া ধ্বনি, উপধ্বনি আৰু তাৰ শ্ৰেণীবিভাজন, বিশিষ্ট ধ্বনি বা বৰ্ণ: বিশিষ্ট স্বৰধ্বনি, বিশিষ্ট ব্যঞ্জনধ্বনি

অধ্যায় ২ : **অসমীয়া ভাষাৰ ব্যাকৰণৰ কেইটামান বিশেষ দিশ —২**

চন্দ্ৰবিন্দুৰ ব্যৱহাৰ,ণত্ববিধি আৰু ষত্ববিধি, যতিচিহ্ন

অধ্যায় ৩: **অসমীয়া ভাষাৰ বিভক্তি আৰু প্ৰত্যয়**

বিভক্তি আৰু প্ৰত্যয়,অসমীয়া ভাষাৰ বিভক্তিৰ শ্ৰেণী বিভাগ: শব্দ বিভক্তি বা কাৰক বিভক্তি, পুৰুষবাচক সম্বন্ধবাচক বিভক্তি, ক্ৰিয়া বিভক্তি.অসমীয়া ভাষাৰ প্ৰত্যয়ৰ শ্ৰেণী বিভাগ: কৃৎ প্ৰত্যয় আৰু তদ্ধিৎ প্ৰত্যয়, নিৰ্দিষ্টতাবাচক প্ৰত্যয়

অধ্যায় ৪ : **অসমীয়া ভাষাৰ বাক্যৰীতি**

বাক্যৰীতিৰ সংজ্ঞা,বাক্যৰ শ্ৰেণী বিভাজন,উদ্দেশ্য আৰু বিধেয়,বাক্য,উক্তি,বাক্যত পদৰ ক্ৰম

অধ্যায় ৫: **অসমীয়া ভাষাৰ পদ**

পদ,পদৰ শ্ৰেণী বিভাজন: সব্যয় আৰু অব্যয়,বিশেষ্য,বিশেষণ,সর্বনাম,ক্ৰিয়া

অধ্যায় ৬: **অসমীয়া ভাষাৰসন্ধি, সমাস, বচন আৰু লিংগ**

সন্ধি,সমাস,বচন,লিংগ

অধ্যায় ৭: **জতুৱা ঠাঁচ আৰু খণ্ডবাক্য**

জতুৱা ঠাঁচ আৰু খণ্ডবাক্যৰ সংজ্ঞা, অসমীয়া জতুৱা ঠাঁচ আৰু খণ্ডবাক্যৰ প্ৰয়োগ আৰু অর্থ

অধ্যায় ৮ : **শব্দৰ ভুল প্ৰয়োগ, সমোচ্ছাৰিত শব্দ, সমার্থক শব্দ, বিপৰীত শব্দ, বাক-সংহতি**

শব্দৰ ভুল প্ৰয়োগ,সমোচ্ছাৰিত শব্দ,সমার্থক শব্দ,বিপৰীত শব্দ,বাক-সংহতি

অধ্যায় ৯ : **সাম্প্ৰতিকদৈনন্দিন জীৱনত ব্যৱহৃত অসমীয়া ভাষা**

দৈনন্দিন জীৱনত ব্যৱহৃত অসমীয়া ভাষা – শব্দৰ ভুল প্ৰয়োগ,এফ এম তথা ভিন ভিন দৃশ্য-শ্ৰাব্য মাধ্যমৰ অসমীয়া ভাষা, নিৰ্দিষ্টতাবাচক প্ৰত্যয়,কাৰক আদিৰ পৰিহাৰ

অধ্যায় ১০ : প্ৰবন্ধ লিখন,সমীক্ষালিখনআৰুপৰিভাষাৰ প্ৰাথমিক ধাৰণা

প্ৰবন্ধৰ সংজ্ঞা, অৰ্থ আৰু ইতিহাস, লিখন পদ্ধতি – গুৰুত্ব দিবলগীয়া কিছু দিশ,সমীক্ষাৰ সংজ্ঞা, অৰ্থ আৰু ইতিহাস, লিখন পদ্ধতি, বিভিন্ন প্ৰকাৰৰ সমীক্ষা, পৰিভাষাৰ সাধাৰণ পৰিচয়

অধ্যায় ১১ : চিঠি, আৱেদন পত্ৰ, কাৰ্যালয়ৰটোকাপ্ৰস্তুতআৰুসভাৰকাৰ্যক্ৰমণিকালিখন

চিঠিৰ বিভাগ আৰু লিখন পদ্ধতি,আৱেদনপত্ৰৰ ভাগসমূহ, লিখন পদ্ধতি, কাৰ্যালয়ৰ টোকা প্ৰস্তুতিৰ পদ্ধতি, সভাৰ কাৰ্যক্ৰমণিকা লিখন

Reading List

Bora Satyanath (1998).*Bohol Byakoron.* Guwahati.

Deka, Dharma Singha (2018). *Rachana Bichitra.* Guwahati: Asom Book Depot.

Goswami, Upendranath (1997). *Axamiya Bhasar Byakoron*. Guwahati: Moni-Manik Prakash

Goswami, Golokchandra (1996). *Axamiya Bornoprokash*. Guwahati: Bina Library

Anker.S(1998). *Real Writing.*Boston:Bedford Books

Misra.P.S.(2009).*An Introduction to Stylistics: Theory and Practice*. New Delhi: Orient Black Swan

Puri, Manohar (2006). *Art of Editing*. New Delhi: Pragun Publications.

IDC 102 Reading and Writing Skills

Learning Objectives
The objectives of the course are to:

- develop reading and writing skills
- provide an idea on the methods and techniques of good reading skills
- provide a detailed study on various aspects and types of writing skills
- enhance the learner's communication skills
- equip the learner with a sound knowledge and good practice of these skills in their practical life

Learning Outcomes
After going through the course, the learner will be able to:

- enhance reading and writing skills
- discuss the methods and techniques of good reading skills
- study the various aspects and types of writing skills in a detailed manner
- enhance the learner's communication skills as it would help in real life contexts and situations
- develop knowledge of different literary forms and their stylistic variations

UNIT 1: SOME CONCEPTS IN READING
Introduction, the Skills of Reading, Reading a Text, The Reading Process, Key Words

UNIT 2: READING A STORY
Introduction, Pre-reading Activities, While Reading a Story, Post-reading Activities

UNIT 3: READING A POEM
Introduction, Pre-reading Activities, Reading the Poem, Post-reading Activities

UNIT 4: READING A PROSE TEXT
Introduction, Pre-reading Activities, While Reading a Prose Text, Post-reading Activities

UNIT 5: READING A PLAY
Introduction, Pre-reading Activities, Reading the Play, Post-reading Activities

UNIT 6: SOME CONCEPTS IN READING I
Introduction, Features of Good Writing: Cohesion

UNIT 7: SOME CONCEPTS IN WRITING II
Introduction, Coherence, Punctuation

UNIT 8: PRÉCIS WRITING
Introduction, Techniques of Faster Reading, Writing a Good Précis, Language Work, Worked out Examples

UNIT 9: REPORT WRITING
Introduction, Language and Style of Reporting, Headlines, Writing a Report

UNIT 10: WRITING FORMAL LETTERS AND FIR WRITING
Introduction, the Structure of a Letter, A Format of FIR

UNIT 11: COMMUNICATION SKILLS
Introduction, What is Communication? Listening Skill, Speaking Skill, Soft Skill, Face-to-Face Oral Communication, Oral Communication and Soft skills, Non-verbal Communication, Telephone

Communication, Formal & Informal Telephone Communication, Non- verbal Communication, Cutting in a Long-winded Speech, Analysing Soft Skills, Assertiveness, Social Graces

Reading List

Bishop, Wendy. (1992). Working Words: The Process of Creative Writing. California: Mayfield Publishing Company

Burroway, Janet. (1992). Writing Fiction: A Guide to Narrative Craft. New York: Harper Collins

Drabble, Margaret. Ed. (2008). The Oxford Companion to English Literature. Sixth Edition.

Hudspn, William Henry. (1995). An Introduction to the Study of Literature. New Delhi: Kalyani Publishers.

Kirszner, Laurie and Stephen Mandall. (2004). Literature: Reading, Reacting, Writing. Fifth Edition. Canada: Thomas Wadsworth

Scholes, Robert and Nancy R. Combey et al. (eds.) (1997). Elements of Literature. Fourth Edition. New York: Oxford University Press.

IDC 103 Media Studies

Course Objectives

- To provide an overview of the different types of mass media
- To acquaint learners with the functional process of the media industry
- To provide ground for analyzing the usefulness of different media forms in the society

Course Outcomes

On completion of this course, the learners will be able to

- describe the various forms of media and their functionality
- critically analyze the media forms and their role in society
- examine how the media industry and media content shape our views

Syllabus

UNIT 1: THE MASS MEDIA

Media of Mass Communication, Characteristics of different mass media, Audience, Reach and Access, Role of media, Creating public opinion, Agenda-setting role

UNIT 2: DEVELOPMENT OF MASS MEDIA

Early Communication systems in India, Role of media in India, Freedom struggle and the role of media, Pre-independence era of mass media, Development of Mass Media in the Post Independence Era – Press, Television, Radio, Films, Advertising, Public Relations

UNIT 3: TRADITIONAL FOLK MEDIA

Traditional Folk Media, Advantages of Traditional Folk Media, Folk Media Reflects Social Changes, Traditional Folk Media as Development Media

UNIT 4: PRINT MEDIA

Print media – an introduction, Types of Print Media, Relevance and importance of Print Media — Problems and prospects, History of newspaper - World scenario, Indian scenario, Newspaper categories and formats

UNIT 5: AUDIO MEDIA - RADIO

What is audio media?, Audio media vs print media vs audio-visual media, Radio Contents, Classification of programmes, Various radio programmes, Assamese programmes on radio, The elementary knowledge of radio productions

UNIT 6: VISUAL MEDIA: PHOTOGRAPHY

Concept of Photography, Photography – Basic Idea, Beginning of Photography, Still photography, Technical concepts of Photography, Types of Camera, Types, Parts of a still camera, Movie Camera, Shots and Camera Movements- Shot, Camera Movement

UNIT 7: PHOTOJOURNALISM

Concept of photojournalism, Basics of photojournalism, Photo feature or Photo essay, qualities of a photojournalist, ethics of photography, writing and editing captions

UNIT 8: AUDIO-VISUAL MEDIA: FILM

Film as a mass medium - Characteristics of film, Audience, Impact of film on audience, Film as an industry, Art and Commercial movie, Concept of film appreciation, Film in India- Regional film, Assamese film, A few important film makers of India, Central Board of Film Certification, Concept of documentaries

UNIT 9: AUDIO VISUAL MEDIA: TELEVISION

Introduction to Television, Brief History of Television in India, *Doordarshan*

UNIT 10: TELEVISION PROGRAMMES AND PRODUCTION
Television programmes – new items, current affairs programme, Television production, Writing for television

UNIT 11: INTRODUCTION TO NEW MEDIA
Concept of new media- Definition, Difference between conventional media and new media, Characteristics of new media, Most common vehicles of new media

UNIT 12: REPORTING FOR MEDIA
Concept of Reporting, The News Reporter- Qualities, Responsibilities, Basic facts about reporting

UNIT 13: MEDIA CONVERGENCE
Convergence – an introduction, Relevance of convergence in the present circumstances, Impact of convergence on conventional forms of media

UNIT14: WRITING FOR RADIO PROGRAMME (PRACTICAL BASED)
Prepare a detailed report for the preparation of a radio programme in the programme format of your choice, based on a minor research, as instructed in the unit.

UNIT 15: FILM REVIEW (PRACTICAL BASED UNIT)
Film review is a great way of analyzing a film by way of expressing your opinion of a movie. In this unit, learners will be required to submit a report on film reviews of any two films of their own choice. One film should be any English language film and the other should be either a mainstream Hindi film or any regional language

Reading List

- Aggarwal, Vir Bala, V.S Gupta (2002) Handbook of Journalism and Mass Communication. New Delhi: Concept Publishing Company
- Narula, Uma. (2006) Communication Models. New Delhi: Atlantic Publishers & Distributors.
- Desai, Amit (2003) Journalism and Mass Communication. New Delhi : Reference Press
- Hodkinson, Paul (2011), Media, Culture and Society, Sage Publications, New Delhi

IDC 104 Distance Education

Course Objectives

- To orient the learners with the nature and need of Distance Education in the present day Indian society.
- To provide the exposure to the learners to different kinds of Information and Communication Technologies (ICT) and apprise them with their use in teaching-learning process.
- To help the learners understand various modes of student support service (SSS) and develop their skills to manage such services for various kinds of programmes through Distance Education.

Course Outcomes

After going through this course, the graduates will be able to:

- acquire knowledge and understanding on the current field of education, particularly distance education
- develop the basic understanding on the emerging issues of open and distance education
- gather the procedural knowledge which are required for performing multidisciplinary and skill based programmes in the 21st century
- apply the acquired specialized technical or theoretical knowledge, cognitive and practical skills in the practical field of life
- employ the right approach to generate solutions to problems related to various approaches of modern higher education.
- acquire the cognitive and technical skills for performing and accomplishing complex tasks relating to the subject on education and other interdisciplinary courses

Syllabus

UNIT 1: DISTANCE EDUCATION

Growth of distance education, distance education in India

UNIT 2: LEARNER-SUPPORT SERVICE

Role of study centre, counselling classes, self-learning materials, different audio-visual aids and other electronic devices

UNIT 3: SELF LEARNING MATERIAL

Need of Self Study Materials in distance education, designing and preparing self-learning material, Planning and development of Study materials, modification and up-gradation of Study Materials.

UNIT 4: STUDY SKILLS

Study skills in distance education, strategies for developing study skills

UNIT 5: CURRICULUM

Concept, curriculum development process-major approaches

UNIT 6: CURRICULUM AND EVALUATION

Need for curriculum evaluation, aspects of curriculum evaluation

UNIT 7: ROLE OF DISTANCE EDUCATION

Distance education for rural development, Distance education for women empowerment

UNIT 8: QUALITY ASSURANCE IN DISTANCE EDUCATION

Quality enhancement, monitoring, feedback and evaluation

UNIT 9: ASSESSMENT IN DISTANCE EDUCATION

An overview on assessment, purposes of assessment, assessment in open and distance learning

UNIT 10: INTERVENTION STRATEGIES
Information and communication technologies and their application in distance education.

UNIT 11: NEW INTERVENTIONS IN OPEN AND DISTANCE LEARNING
MOOCs and Open Educational Resources and its application for opening knowledge movement in India

Reading List

Aggarwal, D.D. Future of Distance Education, Sarup & Sons, New Delhi, 2007
Bansal, Aarti: Distance Education in 21st Century, Sublime Publications, Jaipur, 2004
Rao, V.K.: Distance Education, APH Publishing Corporation, New Delhi, 2007
Siddiqui, Mujibul Hasan: Distance Education, Theory and Research, A.P.H. Publishing Corporation, Ansari Road, New Delhi, 2007
Shardindu: Open and Dual Mode University System in India, Vani Prakasan, New Delhi, 2008

IDC 105 Constitution of India

Course Objectives
The course aims to providing learner

- An understanding of the background and process of making of the Constitution of India
- An awareness about the core values of principles underlying the Constitution of India
- An account of basic constitutional provisions and framework of governments' operation in service of the people of the country
- A sense of duties and responsibilities of as a citizen of the country

Course Outcomes
After completing the course, a learner will be able to

- Understand and appreciate the background, context and process of making of the Indian Constitution
- Appreciate and imbibe the core values and principles of the Constitution of India
- Act as a responsible citizen of the country performing her/his duties and responsibilities

Syllabus

UNIT 1: HISTORICAL BACKGROUND OF THE INDIAN CONSTITUTION
Constitutional Developments during the British Period: 1773 to 1947

UNIT 2: MAKING OF THE INDIAN CONSTITUTION
Formation of the Constituent Assembly, Drafting Committee, Adoption of the Constitution of India

UNIT 3: PHILOSOPHY AND IDEALS OF THE INDIAN CONSTITUTION
Philosophy and Ideals of the Indian Constitution: The Preamble of the Constitution of India; Sources of the Indian Constitution

UNIT 4: FEATURES OF THE INDIAN CONSTITUTION
Salient Features of the Indian Constitution

UNIT 5: FUNDAMENTAL RIGHTS AND FUNDAMENTAL DUTIES
Meaning, Historical Background, Nature, Importance, Categories of Fundamental Rights, Limitations of Fundamental Rights; Fundamental Duties: Background, Types and Significance of Fundamental Duties

UNIT 6: DIRECTIVE PRINCIPLES OF STATE POLICY
Meaning, Nature and Classification of Directive Principles of State Policy; Difference between Fundamental Rights and Directive Principles of State Policy

UNIT 7: RELATIONS BETWEEN FUNDAMENTAL RIGHTS AND DIRECTIVE PRINCIPLES
Relationship between Fundamental Rights and Directive Principles of State Policy

UNIT 8: GOVERNMENT AT THE UNION AND STATE LEVELS
Government at the Union level: The President of India, The Vice-President of India, The Union Council of Ministers, The Prime Minister; Government at the State level: The Governor, The State Council of Ministers and the Chief Minister

UNIT 9: THE PARLIAMENT OF INDIA AND THE STATE LEGISLATURE
Composition of the Parliament of India: The President, The Rajya Sabha, The Lok Sabha; Powers and Functions of the Parliament; Relation between the two Houses of the Parliament; Legislative

Procedure: Procedure for a Money Bill; The State Legislature: The Legislative Assembly or Vidhan Sabha, The Legislative Council or Vidhan Parishad

UNIT 10: JUDICIARY IN INDIA

Supreme Court and High Courts; The Supreme Court; The High Court: Subordinate Courts; Judicial Review, Judicial Activism and Independence of the Judiciary in India: Judicial Review, Judicial Activism, Independence of the Judiciary in India

UNIT 11: NATURE OF INDIAN FEDERALISM

Nature of Indian federalism: Federal features, Unitary or non-federal features; Centre-State Relations-Division of powers between the Union and State governments: Legislative Relations, Administrative Relations, Financial Relations; An estimate of Indian federalism

Reading List

Basu, D. D. (2009). Introduction to the Constitution of India. New Delhi: Prentice Hall of India.

Brass, Paul R. (1997). The Politics of India Since Independence. New Delhi: Cambridge University Press.

Chander, Prakash (2000). Indian Government and Politics. New Delhi: Cosmos Bookhive Pvt. Ltd.

Dev, B.J and Lahiri, D.K. (1985). Assam Muslims- Politics and Cohesion. Delhi: Mittal Publication.

Ghai, K. K. (2007). Indian Government and Politics. New Delhi: Kalyani Publishers.

Kapur, Anup Chand &Misra, K. K. (2006). Select Constitutions. New Delhi: S. Chand and Company.

Kothari, Rajni. (2009). Politics in India. New Delhi: Orient BlackSwan Private Limited.

Palanithurai, G. (2000). Grass-root Democracy in Indian Society. New Delhi: Concept Publishing Company.

Pylee, M. V. (2006). Constitutional Government in India. New Delhi: S. Chand and Company.

Singh Sisodia, Yatindra (2005). Functioning of Panchayati Raj System. Jaipur: Rawat Publication.

Jayal, Niraja Gopal; Mehta Pratap, Bhanu (eds) (2010). Oxford Companion to Politics in India. New Delhi. Oxford University Press.

IDC 106 Economy of the North East India

Course Objectives

- To provide knowledge on different aspects of the Indian economy
- Help to analyse the service sector growth and recent important issues in the Indian economy

Course Outcomes

- This course will enable the learners to explain various important aspects of the Indian economy
- This course will also help the learners to analyse the different factors relating to the recent service sector growth and other important issues in the Indian economy

Syllabus

UNIT 1 : INDIAN ECONOMY: ITS BASIC CHARACTERISTICS, DEVELOPMENT AND GROWTH
Indian Economy in the pre-independence period, Characteristics of India as a developing economy; Emerging Issues of development in the Indian economy National Income: Trends, size and Composition

UNIT 2 : POPULATION AND HUMAN RESOURCES
Size, and growth of Population; Characteristics of the population: sex ratio, age composition, density, rural-urban ratio and occupational distribution. Indicators of Human Development: Life Expectancy, Infant Mortality and Literacy

UNIT 3: INFRASTRUCTURE IN THE INDIAN ECONOMY
Infrastructural Facilities in India: Energy, Power, Transport and Communication, Urban Infrastructure in India, Industrial Corridor and Smart Cities

UNIT 4: INDIAN AGRICULTURE & GREEN REVOLUTION
Role of agriculture in Indian economy; Nature of India's agriculture; Trends in Agricultural Production and Productivity; Factors Influencing Productivity; The new agricultural strategy and the Green Revolution; Impact of Green Revolution

UNIT 5: AGRICULTURAL FINANCE, RURAL CREDIT AND AGRICULTURAL MARKETING
Need for agricultural finance; Sources; Role of Rural co-operatives; commercial banks and Regional rural banks; Role of NABARD. Agricultural marketing: Concept and basic requirements; Limitations of agricultural marketing; Role of the Government in promoting agricultural marketing

UNIT 6: FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM IN INDIA
Concept of Food Security; Salient Features of Food Security Act 2013, Public Distribution Systems and Its Impact on Poverty; Problems of the PDS and Suggestive Measures

UNIT 7: INDIAN INDUSTRY – DEVELOPMENTAL EXPERIENCE
Strategy of Industrial Development in India; Industrial Development since Independence; Problems of Industrialisation in India; Industrial Policy Resolution, 1956; New Industrial Policy, 1991; Recent Policy Reform Measures in Initiated in the Industrial Sector

UNIT 8: THE ROLE OF THE TERTIARY SECTOR IN THE INDIAN ECONOMY
Changing role of the Tertiary Sector in the Indian Economy; The Recent Growth of the IT and other service sectors; Major Issues in faced by the Service Sector and Suggestive Policy Measures

UNIT 9: UNORGANISED SECTOR, LABOUR PROBLEMS AND LABOUR POLICY
Unorganised Sector and India's Informal Economy; Size and Features; Major Issues; Suggestive Measures; Present Status of Agricultural Labours in India; Major Recommendations of the National

Commission on Rural Labour; Features of Industrial Labour; Trade Union Movement in India; Settlement of Industrial Disputes; Social Security Measures introduced for the welfare of the labours; Problems in the Labour Market and Suggestive Measures.

UNIT 10: PLANNING FOR DEVELOPMENT

Economic Planning in India; Overall Objectives of Economic Planning; Overall Achievements and Failures of Economic Planning; The Current Five Year Plan: Objectives and Targets Major Objectives, Targets and Achievements of the Last Five Year Plan; Critical Assessment.

UNIT 11: ECONOMIC REFORMS AND GLOBALISATION

Economic Crisis prior to 1991 Economic Reforms; New Economic Policy of 1991; Indian Economy since Economic Reforms

Reading List

Agarwal, A.N. (2015): *Indian Economy: Problems of Development and Planning*, Ed., New Age International.

Datt and Mahajan (2015): *Indian Economy*, 71st Ed., S. Chand & Co. Ltd.

Dhingra, I. C. (2014): Indian Economy: Environment and Policy, Sultan Chand & Sons

Kapila, U (2015): *Indian Economy: Performance and Policies*, 15th Edition, Academic Foundation.

Misra and Puri (2016): *Indian Economy: Its Development Experience*, 31st Ed., Himalaya Publishing House.

IDC 107 Understanding Indian Society

Learning Objectives
This course intends to:

- enable the learners to understand about different types of Indian Society
- enable the learners to know about the major social institutions like Family, Marriage, Kinship, Caste, and Tribe of India
- enable the learners to know about the status of Women in India

Learning Outcomes
After going through this course, learners will be able to:

- Understand about different types of Indian Society
- know about the major social institutions like Family, Marriage, Kinship, Caste, and Tribe of India
- know about the status of Women in India

Syllabus

UNIT 1: INDIAN SOCIETY: UNITY IN DIVERSITY
Meaning and Definition of Society and Culture; Indian Society and Culture; Unity and Diversity: Meaning and Concept; Forms of Diversity in India: Geo-physical diversity, Racial diversity, Linguistic diversity, Religious diversity.

UNIT 2: TYPES OF INDIAN SOCIETY
Urban Society; Classification of Cities; Problems of Urban Society; Rural Society in India, Types of Indian Villages, Local Self-governance in the Rural Areas, Criticisms of local self-governance system; Tribal Society in India; Approaches towards tribal society, Significance of 5th and 6th schedule of the Indian Constitution

UNIT 3: MARRIAGES AND FAMILY IN INDIA
Family and marriage, Concepts, Types, Criteria of family formation; Some important dimensions of family: Household, Patriarchy, Gender division of labour

UNIT 4: KINSHIP SYSTEM
Meaning; Definition; Types; degree of Kinship Rules; Taboos; Kinship structure and pattern in the different geographical zones across India

UNIT 5: CASTE IN INDIA
Caste –Meaning and Characteristics; Jati and Varna; difference between Caste and Class; Jajmani system; Dominant Caste; Caste through the Ages; Administrative Interpretation of Caste: Scheduled Castes and their problems; Abolition of Untouchability

UNIT 6: CHANGING NATURE OF CASTE
Casteism – Meaning and causes; Relationship between Caste and Politics; Caste and Voting behaviour; Political Elite, Caste Mobilisation

UNIT 7: TRIBES IN INDIA
Tribe: Definition and Meaning; Characteristics; T.B. Naik's Characterisation of Tribe; Anthropological Convention; Constitution of India and Scheduled Tribes; Common Characteristics; Classification and Distribution of Tribes; British Policy towards the Tribes; Policy during the Post-Independence Period

UNIT 8: WOMEN IN INDIAN SOCIETY
Women in Ancient India: Vedic and Post – Vedic Periods; Buddhist period; Medieval Period; Reform Movements and Struggle for Independence; Gender Relation in different period; Women Empowerment.

UNIT 9: ECONOMY OF INDIAN SOCIETY

Economy and types of Economies; Traditional Economic system and its characteristics; Command Economic system and its characteristics; Market Economic system and its characteristics, Mixed Economic system and its characteristics; Indian Economy before Independence; Indian Economy Post Independence Period; New Economic Policies: Liberalization, Globalization, Privatization

UNIT 10: POLITICS IN INDIA

Evolution of Indian Political Structure; Indian Structure Post Independence; Society; Decentralisation of power; Political Elite; Political Parties; Emergence of Electoral System

UNIT 11: RURAL LIFE IN INDIA

Evolution of Indian Villages; Characteristics of Indian villages; Agrarian Societies: Agrarian Class Structure; Land Reforms and Changes: Land Reforms in post-independence period, Current Scenario of Land Reforms in India

Reading List

Beteille, A., 1969, (ed.): Social Inequality: Selected Readings. Harmondsworth: Penguin Books.

Srinivas, M.N., 1962, Caste in Modern India and other essay. Bombay: Asia Publishing House.

Dumont, L., 1991, "Hierarchy Status and Power: The Caste System and its implications" in Dipankar Gupta (ed.), Social Stratification .Delhi: Oxford University Press..

Berreman, G. D., 1991, "The Brahmanical View of Caste" in Dipankar Gupta (ed.), Social Stratification. Delhi: Oxford University Press.

IDC 108 Introduction to Indian History

Course Objectives

- This course is an introductory course intending to introduce Indian history to the learners
- To give a brief idea about the different sources of Indian history
- To discuss important political events of Indian history throughout the ages

Course Outcomes

After completing this course

- Learners are expected to have a fair knowledge about the history of India
- Learners will able to understand different sources of Indian history
- Learners will be able to analyse major political events of India from different historical perspectives

Syllabus

UNIT 1: INTRODUCTION TO HISTORY
What is History, Scope and Meaning of History, Relationship of History with other Social Sciences

UNIT 2: SOURCES OF ANCIENT INDIAN HISTORY
Literary Sources, Archaeological Sources, Foreign Sources

UNIT 3: EARLY INDIAN CIVILIZATIONS
Harappan Civilization, Vedic Civilization

UNIT 4: POLITICAL DEVELOPMENTS IN MEDIEVAL INDIA
The Delhi Sultanate, Advent of the Mughals and Second Afghan Empire

UNIT 5: SOCIETY, ECONOMY, RELIGION AND CULTURE IN MEDIEVAL INDIA
Social Condition, Economy, Bhakti Movement and Sufi Movement; Art, Architecture and Literature of the Sultanate Period, Social Condition in the Mughal Period, Economy in Mughal India, Religious Conditions during Mughal Rule, Cultural Activities under the Mughals

UNIT 6: ADVENT AND ESTABLISHMENT OF BRITISH RULE IN INDIA (UP TO 1857)
Foundation, Expansion and Consolidation of the British Empire, Constitutional and Administrative Changes, British Economic Policy, revolt of 1857

UNIT 7: SOCIO-RELIGIOUS MOVEMENTS
Causes of the Socio-Religious Movements, Socio-Religious Movements under Colonial rule, Movement for emancipation of Women

UNIT 8: EMERGENCE OF NATIONALISM AND FOUNDATION OF INC
Emergence of Organised Nationalism, Different Political Associations, Foundation of Indian National Congress, Uprising of different peasant and tribal Movements

UNIT 9: INDIAN NATIONAL MOVEMENT UP TO 1916
Partition of Bengal and Swadeshi Movement, Revolutionary National Movements

UNIT 10: INDIAN NATIONAL MOVEMENT FROM 1916 TO 1939
Rise of Gandhi and his Ideology, Non-Cooperation Movement, Khilafat Movement Civil Disobedience Movement and Government of India Act 1935

UNIT 11: INDIAN NATIONAL MOVEMENT FROM 1939 TO 1947
August Offer and Quit India Movement, Subhas Chandra Bose and Indian National Army

UNIT 12: PARTITION AND TRANSFER OF POWER
Post-War Development-Change in British Attitudes, Communal Policies and Partition

Reading List

Chandra, Satish. (1990). Medieval India, NCERT, New Delhi
Chandra, Sathish(2007) A History of Medieval India, Orient Black Swan, New Delhi
Chattopadhyaya, Brajadulal (2012). The Making of Early Medieval India, Second edition, Oxford Press, New Delhi
Jha, D.N. (1977), AncientIndia-An Introductory Outline, Peoples' Publishing House, New Delhi-110055
Kosambi, D.D. (2001): The cultural and Civilization of Ancient India in Historical Outline, Vikas Publishing House

IDC 201 Select Assamese Literary Texts

Course Objectives
After going through this course, a learner will be able to:
- Identify the accent of different literary genera of Assamese literary texts.
- Discuss the writing style of diverse Assamese literary texts.

Course Outcomes
After going through this course, a learner will be able to:
- Evaluate the history and trends of distinct Assamese literary genera.
- Formulate the trends of Assamese poetry, drama, novel, and prose since inscriptions.

Syllabus

অধ্যায় ১: অসমীয়া লোক কবিতা
অসমীয়া লোকগীত/লোক কবিতাৰ সাধাৰণ পৰিচয়, শ্ৰেণীবিভাজন. *প্ৰাণগোপাল, পাতিলামায়াৰেখেলা*: কামৰূপী লোকগীতৰ সাধাৰণ পৰিচয়, গীতটিৰ সাধাৰণ আলোচনা

অধ্যায় ২: শংকৰদেৱ: নন্দোৎসৱ
শংকৰদেৱ : *নন্দোৎসৱ* – মূলপাঠ : কবিপৰিচয়, কবিতাটিৰ মূলভাব, কবিতাটিৰ সাধাৰণ আলোচনা, শব্দাৰ্থ

অধ্যায় ৩: ছাহমিলান : অধমেলইলোঁ, অধমেলওঁ, আল্লাৰনাম
ছাহমিলান :অধমেলইলোঁ, অধমেলওঁ, আল্লাৰনাম (জিকিৰ) – মূলপাঠ : কবিপৰিচয়, জিকিৰৰসাধাৰণপৰিচয়, কবিতাটি (জিকিৰ)ৰমূলভাব, কবিতাটি (জিকিৰ)ৰসাধাৰণআলোচনা, শব্দাৰ্থ

অধ্যায় ৪ : অম্বিকাগিৰীৰায়চৌধুৰী : গঢ়াকৰিমোকঝাড়ুদাৰ
অম্বিকাগিৰী ৰায়চৌধুৰী: গঢ়া কৰি মোক ঝাড়ুদাৰ – মূলপাঠ: কবিপৰিচয়, কবিতাটিৰ মূলভাব, কবিতাটিৰ সাধাৰণ আলোচনা

অধ্যায় ৫: হেমবৰুৱা : মমতাৰচিঠি
হেমবৰুৱা: মমতাৰচিঠি – মূলপাঠ: কবিপৰিচয়, কবিতাটিৰ সাধাৰণ আলোচনা

অধ্যায় ৬: লক্ষ্মীনাথবেজবৰুৱা : ভদৰী
লক্ষ্মীনাথ বেজবৰুৱা: ভদৰী – মূলপাঠ : জীৱন আৰু কৃতি, গল্পটিৰ সাধাৰণ আলোচনা

অধ্যায় ৭: যোগেশ দাস : পৃথিৱীৰ অসুখ
যোগেশ দাসৰ জীৱন আৰু কৃতি: যোগেশ দাসৰ গল্পৰ মূলসুৰ, পৃথিৱীৰ অসুখ: গল্পটোৰ বিষয়বস্তু আৰু সাধাৰণ আলোচনা, চুটিগল্প হিচাপে পৃথিৱীৰ অসুখ

অধ্যায় ৮ : বাণীকান্ত কাকতি : সাহিত্যত কৰুণ ৰস
বাণীকান্ত কাকতিৰ জীৱন আৰু কৃতি: সাহিত্য সমালোচক হিচাপে বাণীকান্ত কাকতি, কাকতিৰ প্ৰবন্ধশৈলীৰ বৈশিষ্ট্য, সাহিত্যত কৰুণ ৰস: প্ৰবন্ধটোৰ বিষয়বস্তু, সাধাৰণ আলোচনা

অধ্যায় ৯ : ৰজনীকান্ত বৰদলৈ : নিমৰ্লভকত — ১
ৰজনীকান্ত বৰদলৈৰ জীৱন আৰু কৃতি, নিৰ্মল ভকত উপন্যাসখনৰ সাধাৰণ আলোচনা

অধ্যায় ১০: ৰজনীকান্ত বৰদলৈ : নিমর্লভকত — ২
উপন্যাসখনৰ চৰিত্র চিত্রণ, উপন্যাসখনৰ বৈশিষ্ট্যসমূহ

অধ্যায় ১১: শংকৰদেৱ – কালিদমন
অংকীয়ানাট: 'অংকীয়ানাট' শব্দ দুটাৰ তাৎপর্য আৰু ইয়াৰ উৎপত্তি, অংকীয়া নাট ৰচনাৰ কলা-কৌশল, অংকীয়া নাটৰ বৈশিষ্ট্য,নাট্যকাৰ শংকৰদেৱ, কালিদমন: নাটৰ মূল আৰু বিষয়বস্তু, সাধাৰণ আলোচনা, ৰসবিচাৰ

Reading List

Bora, Mahendra (1976*). Ramanyasbaad*. Pathshala: Bani Prakash
Baruah, Prahlad Kumar (2005). *Asomia Chutigalpa Adhyayan.* Guwahati: Banalata.
Bharali, Sailen (2003). *Upanyas: Bichar Aru Bislekhon*. Guwahati: Chandra Prakash.
Deva Goswami, Keshavananda (1979). *Ankmala*. Guwahati: Banalata
Gogoi, Lila (1968). *Asomia Luka-SahityarRuprekha.* Golaghat: Nabin Pustak Bhandar.
Goswami, Trailukyanath (2006). *AdhunikGalpa Sahitya.* Guwahati: Bani Prakash Pvt Ltd.
Hazarika, Atulchandra (1988). *Manchalekha.* Guwahati: Lawyers Book Stall.
Kataki, Prafulla (1995). *Swarajuttor Axamiya Upanyas Samiksha*. Guwahati: Bina Library.
Pujari, Archana (Edited).(2000). *Axamiya Kobitar Bichar Bishlekhon*. Panbazar, Guwahati: Jyoti Prakashan
Sharma, Hemanta Kumar (1998). *Axamiya Lokagiti Sanchayan*. Panbazar, Guwahati: Bina Library
Sharma, Satyendranath (2009). *Axamiya Natya Sahitya*. Guwahati: Saumar Prakash
Thakur, Nagen (Edited)(2012). *Axo Bosoror Axamiya Upanyas*. Guwahati: Jyoti Prakashan.

IDC 202 General Principles of Writing

Learning Objectives
The objectives of the course are to:

- provide an idea of certain general principles of writing
- highlight some of the important aspects of English Grammar
- take up the important skills of editing, copy editing and proof reading
- enable the learner to develop adequate writing skills in English

Learning Outcomes
After going through the course, the learner will be able to:

- gain a systematic idea of the various aspects and principles of writing
- take into account some of the important aspects of English Grammar
- practice the important skills of editing, copy editing and proof reading
- take up writing as a career option after completion of the course

Syllabus

UNIT 1: THE WRITER AS AN ARTIST
Introduction, Art and Aestheticism, Narration and Narrative, Narrative and Plot, The Author and the Writing, Point of View and Voice

UNIT 2: WORDS
Introduction, Words and Word Classes

UNIT 3: NARRATION AND VOICE
Introduction, Direct and Indirect Narration, Assertive Sentences, Imperative Sentences, Interrogative Sentences, Exclamatory Sentences, The Category of Voice in English, Assertive Sentence Forms, Interrogative Sentence Forms, Imperative Sentence Forms, Miscellaneous Sentence Forms

UNIT 4: TIME, TENSE AND ASPECTS
Introduction, Time and Tense, Tense and Aspect, The Present Tense, Simple Present Tense, Present Continuous Tense, Present Perfect Tense, Present Perfect Continuous Tense, The Past Tense, Simple Past Tense, Past Continuous Tense, Past Perfect Tense, Past Perfect Continuous Tense, The Future Tense, Simple Future Tense, Future Continuous Tense, Future Perfect Tense, Future Perfect Continuous Tense

UNIT 5: PHRASES AND IDIOMS
Introduction, Samples of Phrases and Idioms

UNIT 6: AMPLIFICATION OF AN IDEA
Introduction, Process Analysis of Amplification, Amplifications Worked Out

UNIT 7: REVIEW WRITING
Introduction, Techniques of Book Review, Techniques of Film Review, Techniques of Play Review, Techniques of Musical Review

UNIT 8: WRITING FOR COLUMN, SCIENCE AND PRESS RELEASE
Introduction, Column Writing, Science Write- up, Press Release

UNIT 9: EDITORIAL WRITING
Introduction, Introduction to the Editorial Page, Writing the Editorial, Writing the Feature, Writing the Article, Writing the Middle, Letters to the Editor

UNIT 10: COMPREHENSION OF AN UNSEEN PASSAGE

Comprehension, Intelligent Reading, Tackling Unseen Passages, Answering Unseen Passages, Examples with Answers

UNIT 11: SHORT COMPOSITION [NOTICE, CLASSIFIED, ADS. ETC.]

Introduction, Notice Writing, Format of a Notice, Worked Out Examples, Advertisements, Classified Advertisements, Worked Out Examples, Commercial Advertisements, Worked Out Examples

Reading List

Anker, S. (1998). Real Writing, Boston: Bedford Books.

Bell, Madison Smartt (1997). Narrative Design: Working with Imagination, Craft and Form, New York: WW. Norton.

Brande, Dorothea. (1981). Becoming a Writer, New York: Penguin.

Earnshaw, Steve (ed.) (2007). The Handbook of Creative and Media Writing, Edinburg University Press.

Geddes and Gresset. (2003). Spelling Grammar and Usage, Webster Reference Library.

Kirszner & Mandell. (2004) Literature: Reading, Reacting, Writing. Fifth Edition. Thomson Wadsworth: Massachusetts.

Seely, John (1998), Oxford Guide to Effective Writing and Speaking, Oxford: Oxford University Press

IDC 203 Environmental Education

Course Objectives

- To make the learners aware of environmental problems and to familiarize the students with the concept and importance of environmental education.
- To make the learners aware of the various mechanisms of environmental protection and promotion.

Learning Outcome

After going through this course, the graduates will be able to:

- acquire knowledge and understanding on the subject like Environmental education
- develop the basic understanding on the emerging issues of environmental education as a subject as a whole.
- gather the procedural knowledge which are required for performing multidisciplinary and skill based programmes in the 21st century
- acquire the cognitive and technical skills for performing and accomplishing complex tasks relating to the subject on education and other interdisciplinary courses
- formulate coherent arguments about ethical and moral issues, including environmental and sustainable development issues, from multiple perspectives.

Syllabus

UNIT 1: ENVIRONMENTAL EDUCATION

Meaning, nature, importance, scope, goals and objectives of Environmental Education

UNIT 2: METHODS OF ENVIRONMENTAL EDUCATION

Observation, Fieldtrips, Project method, co-curricular activities, dramatization, discussion, problem-solving method

UNIT 3: ENVIRONMENTAL MOVEMENTS IN INDIA

Appiko Movement, the Silent Valley Movement, Chipko Movement, the Chilika Bachao Andolan, Narmada Bachao Andolan

UNIT 4: MEDIA OF ENVIRONMENTAL EDUCATION

Concept of Instructional media, magazine, seminar, workshop, exhibitions, models, audio-visual aids

UNIT 5: PROGRAMME OF ENVIRONMENTAL EDUCATION

Programme for primary level, Secondary level and higher level

UNIT 6: ENVIRONMENTAL DEGRADATION

Concept of Environmental degradation, types, causes and prevention of environmental degradation

UNIT 7: ENVIRONMENTAL POLLUTION

Meaning of Environmental Pollution, types of Environmental Pollution- air, water, land or soil, solid-waste, noise, and radio-active pollution

UNIT 8: CONSERVATION AND PROTECTION OF ENVIRONMENT

Meaning of conservation and protection of Environment, need and importance of conservation and protection of environment, role of individual and society towards conservation and protection of Environment

UNIT 9: ENVIRONMENT AND LEGAL PROVISIONS

Legal and Constitutional Provisions for Conservation and Protection of Environment

UNIT 10: SUSTAINABLE DEVELOPMENT
Concept of Sustainable development, characteristics and education for sustainable development

UNIT 11: ENVIRONMENTAL EDUCATION
Its problems and prospects with special reference to Assam

Reading List

R. C. Sarma: Environmental Education, Surya Publication, Meerat, 1997.
R.A Sharma: Environmental Education, Metro Politary Book Co. Pvt,Ltd, New Delhi.
Mahapatra D: Environmental Education.

IDC 204 Issues in Development Communication

Course Objectives

- To familiarize learners with the concepts of development communication
- To provide knowledge on process of development communication and its importance
- To provide understanding on the need and importance of development communication
- To provide knowledge about the global issues related to development communication

Course Outcomes

- On completion of this course, the learners will be able to-
- explain the concepts and importance of development communication
- describe the need of international communication
- identify the issues related with the concept and its implications

Syllabus

UNIT 1: DEVELOPMENT

Meaning of Development, Concept of Development, Alternative Approaches to Development, Indices to Development, Dominant Paradigm of Development - Approaches to Dominant Paradigm of Development, Critique of Dominant Paradigm of Development, Modernisation and Dependency Approach, Core Areas of Development ,Development as Economic Growth

UNIT 2: INTRODUCTION TO DEVELOPMENT COMMUNICATION

Concepts of development and development communication, Introduction to the theories of development communication, Information as a measure of Development, Edutainment and Infortainment – media development

UNIT 3: THEORIES OF DEVELOPMENT COMMUNICATION

Theories of Development, Theory of Modernization, Diffusion of Innovation theory, Theory of Dependency, Meaning and importance of Paradigms, Types of Paradigm- Dominant Paradigm, Criticisms of Dominant Paradigm, Alternate Paradigm

UNIT 4: DIFFERENT STRATEGIES IN DEVELOPMENT COMMUNICATION

Positive Communication Strategies, IECM Strategies, Development Communication Strategies, Communication Strategy Framework, Mass Media and Extension Approach for Development Communication, Planned Development Communication, Public Dialogue Strategy, Negative Communication Strategies, Social Marketing

UNIT 5: DEVELOPMENT COMMUNICATION IN INDIA

Relevance of Development Communication in India, Democratic Decentrailization, Narrowcasting, Panchyati Raj (PR) Institutions, A Brief background of the PR system, Key Objectives

UNIT 6: DISSEMINATING INNOVATION

Diffusion of Innovation, Important stages in the diffusion of innovations, Media used for diffusion, Development Support Communication, Participatory Development Communication, Communication Information Media and Education (CIME), Government's efforts in the Indian Context, Role of media in the process of development and nation building

UNIT 7: RURAL AND AGRICULTURE COMMUNICATION

Rural development, Agricultural Communication, Media campaigns for development, diffusion of innovation, extension studies

UNIT 8: DEVELOPMENT REPORTING

Importance of Development Reporting, Present Trends in Development Reporting, Early Indian Experiments in Development Communication

UNIT 9: MEDIA AND DEVELOPMENT

Media and National Integration, Media in Development, Pillar of Democracy, Media in Crisis Situations, Public Service Broadcasting (PSB), Media as a Leader of the Society, Gandhian Model of Development

UNIT 10: USE OF TRADITIONAL AND FOLK MEDIA FOR DEVELOPMENT COMMUNICATION

Traditional folk media, Advantages of Traditional Folk Media, Folk Media reflects social changes, Traditional Folk Media as Development Media: case studies, role of government and third sector agencies.

Reading List

Gupta, V.S. (2000), Communication and Development, Concept Publishing Company, New Delhi

Kumar, Keval J. (2007), Mass Communication in India, Jaico Publishing House, Mumbai

Mody, Bella (1991), Designing Messages for Development Communication, Sage Publications, New Delhi

Menon, Mridula (2004), Development Communication and Media Debate, Kanishka Publishers, Distributors, New Delhi

Murthy, D V R (2006), Development Journalism, Kanishka Publishers, Distributors, New Delhi

Narula, Uma (2006), Communication Models, Atlantic Publishers & Distributors, New Delhi

Pushkar, Niranjan (2009), Development Communication, Authorspress, New Delhi

Prasad, Kiran (2009), Communication for Development (Volume I & II), B.R. Publishing Corporation, New Delhi

IDC 205 Perspectives on Indian Economy

Course Objectives

- To provide knowledge on different aspects of the Indian economy
- Help to analyse the service sector growth and recent important issues in the Indian economy

Course Outcomes

- This course will enable the learners to explain various important aspects of the Indian economy
- This course will also help the learners to analyse the different factors relating to the recent service sector growth and other important issues in the Indian economy

Syllabus

UNIT 1 : INDIAN ECONOMY: ITS BASIC CHARACTERISTICS, DEVELOPMENT AND GROWTH
Indian Economy in the pre-independence period, Characteristics of India as a developing economy; Emerging Issues of development in the Indian economy National Income: Trends, size and Composition

UNIT 2 : POPULATION AND HUMAN RESOURCES
Size, and growth of Population; Characteristics of the population: sex ratio, age composition, density, rural-urban ratio and occupational distribution. Indicators of Human Development: Life Expectancy, Infant Mortality and Literacy

UNIT 3: INFRASTRUCTURE IN THE INDIAN ECONOMY
Infrastructural Facilities in India: Energy, Power, Transport and Communication, Urban Infrastructure in India, Industrial Corridor and Smart Cities

UNIT 4: INDIAN AGRICULTURE & GREEN REVOLUTION
Role of agriculture in Indian economy; Nature of India's agriculture; Trends in Agricultural Production and Productivity; Factors Influencing Productivity; The new agricultural strategy and the Green Revolution; Impact of Green Revolution

UNIT 5: AGRICULTURAL FINANCE, RURAL CREDIT AND AGRICULTURAL MARKETING
Need for agricultural finance; Sources; Role of Rural co-operatives; commercial banks and Regional rural banks; Role of NABARD. Agricultural marketing: Concept and basic requirements; Limitations of agricultural marketing; Role of the Government in promoting agricultural marketing

UNIT 6: FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM IN INDIA
Concept of Food Security; Salient Features of Food Security Act 2013, Public Distribution Systems and Its Impact on Poverty; Problems of the PDS and Suggestive Measures

UNIT 7: INDIAN INDUSTRY – DEVELOPMENTAL EXPERIENCE
Strategy of Industrial Development in India; Industrial Development since Independence; Problems of Industrialisation in India; Industrial Policy Resolution, 1956; New Industrial Policy, 1991; Recent Policy Reform Measures in Initiated in the Industrial Sector

UNIT 8: THE ROLE OF THE TERTIARY SECTOR IN THE INDIAN ECONOMY
Changing role of the Tertiary Sector in the Indian Economy; The Recent Growth of the IT and other service sectors; Major Issues in faced by the Service Sector and Suggestive Policy Measures

UNIT 9: UNORGANISED SECTOR, LABOUR PROBLEMS AND LABOUR POLICY
Unorganised Sector and India's Informal Economy; Size and Features; Major Issues; Suggestive Measures; Present Status of Agricultural Labours in India; Major Recommendations of the National

Commission on Rural Labour; Features of Industrial Labour; Trade Union Movement in India; Settlement of Industrial Disputes; Social Security Measures introduced for the welfare of the labours; Problems in the Labour Market and Suggestive Measures.

UNIT 10: PLANNING FOR DEVELOPMENT

Economic Planning in India; Overall Objectives of Economic Planning; Overall Achievements and Failures of Economic Planning; The Current Five Year Plan: Objectives and Targets Major Objectives, Targets and Achievements of the Last Five Year Plan; Critical Assessment.

UNIT 11: ECONOMIC REFORMS AND GLOBALISATION

Economic Crisis prior to 1991 Economic Reforms; New Economic Policy of 1991; Indian Economy since Economic Reforms

Reading List

Agarwal, A.N. (2015): *Indian Economy: Problems of Development and Planning*, Ed., New Age International.

Datt and Mahajan (2015): *Indian Economy*, 71st Ed., S. Chand & Co. Ltd.

Dhingra, I. C. (2014): Indian Economy: Environment and Policy, Sultan Chand & Sons

Kapila, U (2015): *Indian Economy: Performance and Policies*, 15th Edition, Academic Foundation.

Misra and Puri (2016): *Indian Economy: Its Development Experience*, 31st Ed., Himalaya Publishing House.

IDC 206 Introduction to Ethics

Course Objectives

- To help the learners to know the important issues in moral sense
- To help the learners to explore the basic education of human life through the different issues of ethics
- To help the learners to determine the issues of what is good or right and bad or wrong

Course Outcomes

- Will know the meaning of ethics and moral philosophy
- Will know the different theories of ethics and will know the difference between normative ethics, meta-ethics and applied ethics
- Will help people to lead a better and ethical life, which will finally create some ethical human resource for the society.

Syllabus

UNIT 1: NATURE AND SCOPE OF ETHICS
Definition of Ethics, Nature of Ethics, Scope of Ethics

UNIT 2: THE CONCEPT OF MORALITY
Definition of Morality, The Nature of Morality, Different Moral Concepts, Moral theory

UNIT 3: FACT AND VALUE
What is fact, What is value, Classification of values, Distinction between fact and value

UNIT 4: MORAL CONCEPTS
Good, Right, Duty, Virtue, Good, Right, Duty, Virtue

UNIT 5: THEORIES OF MORAL STANDARD: HEDONISM
Hedonism in Moral Philosophy, Classification of Hedonistic Theories, Psychological HedonismCritical Comments on Psychological Hedonism, Ethical Hedonism, Critical Comments on Ethical Hedonism, Egoistic Ethical Hedonism, Gross Egoistic Ethical Hedonism, Refined Egoistic Ethical Hedonism, Criticism, Altruistic or Universalistic Gross Hedonism: Bentham, CriticismAltruistic or Universalistic Refined Hedonism : J. S. Mill, Criticism

UNIT 6: UTILITARIANISM: BENTHAM AND MILL UTILITARIANISM
Historical Background of Utilitarianism, Bentham and his Philosophy, Universalistic Hedonism Bentham's View of Utilitarianism, Principle of Utility is the Basis of Legal and Social reforms Criticism, Mill's Life and Works, Mill and Hedonism, Mill's Utilitarianism , Bentham and Mil

UNIT 7: FREEDOM AND DETERMINISM
Determinism: Its Meaning, Arguments in Support of Determinism, What is Freedom or Free Will, Arguments In Support of Free Will, Brief Note On Predestination, Fatalism and Scientific Determinism, The Case Of Freedom and Determinism

UNIT 8: TELEOLOGICAL ETHICS AND DEONTOLOGICAL ETHICS
Normative Ethics and its difference from other three types of ethics, Types of Normative Ethics, Differences between Deontological and Teleological ethics, Critical Evaluation

UNIT 9: PURUSARTHA
Artha, Kama, Dharma, Moksa, Four Basic Sciences

UNIT 10: THEORIES OF PUNISHMENT NOTION OF CRIME AND PUNISHMENT

Theories of Punishment, Deterrent Theory, Reformative Theory, Retributive Theory, Capital Punishment

UNIT 11: META-ETHICS: ITS NATURE AND DISTINCTION FROM NORMATIVE ETHICS

What is Meta-ethics, Ethical Naturalism, Ethical Non-Cognitivism, Ethical Non-Naturalism (Intuitionism) , What is Normative ethics? Teleological Ethics, De-ontological Ethics, Virtue Ethics, Difference between Meta-Ethics and Normative Ethics

Reading list

S.P. Sharma: *Nature and Scope of Ethics*
Ravi, I: *Foundations of Indian Ethics*
J.N. Sinha: *A Manual of Ethics*
J.N. Mohanty: *Classical Indian Philosophy*
I.C. Sharma: *Ethical Philosophies of India*
J.N. Mohanty: *Explorations in Philosophy*
P. Benn: Ethics: *Fundamentals of Philosophy*

IDC 207 Understanding Social Problems

Learning Objectives

This course intends to:

- enable the learners to understand about different types of Social Problems and the various problems existing in our society
- enable the learners to know about the meaning and significance of social welfare along
- enable the learners to know the various social welfare measures undertaken by the government as well as nongovernmental organisations for the benefit of the society

Learning Outcomes

- After going through this course, the learners will be able to:
- Understand about different types of Social Problems and the various problems existing in our society
- Know about the meaning and significance of social welfare along
- Know the various social welfare measures undertaken by the government as well as nongovernmental organisations for the benefit of the society

Syllabus

UNIT 1: SOCIAL PROBLEM

Meaning and nature, characteristics, causes, types and approaches

UNIT 2: CRIME

Meaning and Concept, characteristics and type Crime

UNIT 3: POPULATION EXPLOSION AND ILLITERACY

Meaning; Trends and Patterns of Population Explosion, Causes of Overpopulation, Effects of Overpopulation in India, India's population policy, Meaning of Illiteracy, types of illiteracy, Causes of illiteracy, consequences of illiteracy, Illiteracy in Assam

UNIT 4: POVERTY AND UNEMPLOYMENT

Meaning, causes and measures to control poverty; meaning types and consequences of unemployment

UNIT 5: YOUTH UNREST

Meaning, types and causes of Youth Unrest

UNIT 6: SOCIAL PROBLEMS RELATING TO WOMEN

Prostitution, dowry, violence against women

UNIT 7: SUPERSTITIONS

Meaning, Causes and Effect of superstition

UNIT 8: CHILD LABOUR AND CHILD ABUSE

Meaning, types and causes of child labour child abuse

UNIT 9: PROBLEMS OF THE BACKWARD CLASSES

Socio-economic Problems of the SCs, STs and OBCs, Policies and measures to solve the Problems

UNIT 10: TERRORISM

Concept, Origin, Development, causes and consequences of terrorism

UNIT 11: SOCIAL PROBLEMS AND SOCIAL WELFARE

Meaning, importance, nature and scope

Reading List

Beteille, Andre, 1992, Backward classes in Contemporary India, New Delhi

Berreman, G. D. 1979, Caste and other inequalities: Essays in inequality, Meerut: Folkore Institute.

Dube, Leela. 1997. Woman and Kinship. Comparative perspective on Gender in South and Southeast Asia. New Delhi: Sage Publications.

Gadgil, Madhav and Guha, Ramchandra. 1996. Ecology and Equity: The Use and abuse of nature in Contemporary India. New Delhi. OU

IDC 208 Introduction to History of Assam

Course Objectives
The main objective of this course is to

- Introduce the learners with the historical processes of Assam
- Provide an understanding of the state formation in Assam in the ancient and medieval time
- Give an idea about the cultural and architectural development of the region under different political regime
- Situate Assam in the freedom struggle of India

Course Outcomes
After completing the course

- Learners will be introduced to the historical events and processes of Assam
- Learners will be able understand the state formation process of Assam
- Learners will acquire the knowledge of cultural and architectural progress of the specific period
- Learners will able to analyse the role of Assam in the freedom struggle of India

Syllabus

UNIT 1: SOURCES OF ANCIENT ASSAM
Literary Sources, Archaeological Sources, Foreign Sources

UNIT 2: LEGENDARY PERIOD
Naraka and his successors, Different stories of Naraka

UNIT 3: RULING DYNASTIES OF ANCIENT ASSAM
Varmanas, Salastambhas, Palas

UNIT 4: SOCIETY, ECONOMY, RELIGION AND ADMINISTRATION OF ANCIENT ASSAM
Social Condition, Economic Condition, Religious Condition, Administrative System of Ancient Assam

UNIT 5: SOURCES OF HISTORY OF MEDIEVAL ASSAM
Literary Sources, Archaeological Sources, Foreign Sources

UNIT 6: THE AHOMS
Origin of the Ahoms, Advent of the Ahoms, Events from 1228 A.D. to 1826 A.D.

UNIT 7: THE KOCHES
Origin of the Koches, VisvaSimha, Naranarayan, Partition of the Koch Kingdom

UNIT 8: SOCIETY, ECONOMY, RELIGION AND ADMINISTRATION OF MEDIEVAL ASSAM UNDER THE AHOMS
Social condition, Economic condition, Religious beliefs, Neo-Vaishnavite Movement, the Ahom system of Administration-the Paik System

UNIT 9: ESTABLISHMENT OF THE BRITISH RULE AND ANTI-BRITISH MOVEMENTS
Anglo-Burmese Wars, Treaty of Yandaboo and British Conquest of Assam, British Administrative Set Up, Revolt of 1857

UNIT 10: SOCIO-ECONOMIC TRANSFORMATION OF ASSAM DURING COLONIAL PERIOD
Changes in the Economic Structure, Agrarian Revolts, Social transformation of Assam towards modern age

UNIT 11: EMERGENCE OF POLITICAL CONSCIOUSNESS
Rise of Assamese Nationalism, Establishment of different organisations

UNIT 12: PARTICIPATION OF ASSAM IN THE NATIONAL MOVEMENT
Partition of Bengal and its Impact, the Non Co-operation Movement in Assam, Civil Disobedience Movement and Assam, Quit India Movement in Assam, Grouping Controversy and Independence

Reading List

Barpujari, H.K.(2003): The Comprehensive History of Assam, Vol. I, Vol. II, Vol.III, Vol. IV& Vol. V, 2nd ed., Publication Board Assam, Guwahati

Baruah, S.L.,(2004): A Comprehensive History of Assam, 3rd ed., Munshiram Manoharlal, Delhi

Bhuyan, A.C., (1999): Political History Assam, Publication Board Assam, Vol. I, II, III, 2nd ed., Guwahati

Dutt, K.N (1993): Landmarks in the Freedom Struggle in Assam, Lawyers' Book Stall

Gait, E.,(2004): A History of Assam, Eastern Book House, Revised, Guwahati

Saikia Rajen (2000): Social and Economic History of Assam 1853-1921, Munshiram Manoharlal, Delhi

IDC 301 English for Professional Studies

Learning Objectives

The objectives of the course are to:

- provide a general introduction to some important grammatical concepts
- take up various aspects of English Grammar such as Vocabulary and Punctuation
- highlight some of the common errors made in English Grammar and its correct use
- provide a detailed study on the areas of writing and communication skills in professional context
- To engage the learner in developing skills of office management and correspondence, business communication and presentation of curriculum vitae

Learning Outcomes

- After going through the course, the learner will be able to:
- revise some of the important grammatical concepts
- develop a good idea on various aspects of English Grammar such as Vocabulary and Punctuation
- gain a broad idea on the areas of writing and communication skills
- develop skills of office management and correspondence, business communication and presentation of curriculum vitae
- groom himself or herself with sound communication and professional skills

Syllabus

UNIT 1: SOME CONCEPTS OF GRAMMAR I

English Grammar: An Introduction, Nouns- Kinds of Nouns, Forms of Nouns, Functions, The Noun Phrase, Agreement, Determiners – Articles, Demonstratives, Possessives, Quantifiers, Wh-determiner, Pre-determiners, Verb Forms

UNIT 2: SOME CONCEPTS OF GRAMMAR II

Adjectives, Adverbs, Prepositions

UNIT 3: VOCABULARY

Synonyms and Antonyms, One word Expression, Words Used as Different Word Classes, Phrasal Verbs, Distinction between Similar Words Often Confused

UNIT 4: PUNCTUATION, SYNTHESIS AND TRANSFORMATION OF SENTENCES

Introduction, Punctuation, Synthesis of Sentences, Transformation of sentences

UNIT 5: COMMON ERRORS AND PHRASES AND IDIOMS

Introduction, Common Errors, Phrases and Idioms

UNIT 6: NOTE MAKING

Note making and note taking, Skimming and Scanning, Format of note making, Samples

UNIT 7: COMMUNICATION

Defining Communication, Significance and Process of Communication, Communication Network, Communication Media or Methods, Barriers To Communication, Effective Communication.

UNIT 8: INTRODUCTION TO OFFICE MANAGEMENT

Meaning of Office, Introduction to Office Management, Functions of Office, Relationship of Office with Other Departments, Office Accommodation, Layout and Environment, Office Furniture and Stationery, Office Correspondence and Filing System

UNIT 9: CORRESPONDENCES
Letter Writing, How to Write a Letter, Format of an Official/Business Letter

UNIT 10: PRESENTATION
Writing Executive Summaries, Making a Formal Presentation

UNIT 11: WRITING CURRICULUM VITAE/RESUME
Difference between CV and Resume, Tips for writing CV/Resume, Essentials for writing CV/Resume, Facing Interviews based on CV/Resume, Telephonic Interviews based on CV/Resume

Reading List

Aggarwala, N.K. (2001). Essentials of English Grammar and Composition, New Delhi: Goyal Brothers.

Brown, M. Henry. (1977). The Contemporary College Writer. New York: D Van Nostrand Company.

Chal, Harold Hoontz (1986). Essentials of Management. McGraw Hill Book Company: New York.

Chopra, R.K. Office Management. Himalaya Publishing House.

De Sarkar, P.K. (2007). Higher English Grammar and Composition, Kolkata; Book Syndicate Limited.

Dowerah, Sawpon. A Students' Grammar of English. Guwahati: Students' Stores.

Lewis, Roger. (1979). How to Write Essays. Heinemann & National Exnt. College, London.

Sherlekar, S.A. (1984). Principles of Management. Bombay: Himalaya Publishing House

IDC 302 Economics of Education

Course Objectives

To make the learners aware about:

- The meaning, importance and scope of economics of education
- Educational expenditure as productive consumption and returning investment through the function of human capital and planned manpower development.
- The concept and relationship between input and output of education
- The financial resource management.

Learning Outcomes

After going through this course, the graduates will be able to:

- acquire knowledge and understanding on the subject like economics of education
- develop the basic understanding on the emerging issues of economics of education
- know the basic knowledge regarding the various core courses of Education as a subject as a whole.
- gather the procedural knowledge which are required for performing multidisciplinary and skill based programmes in the 21st century
- Produce efficient and effective leaders in the field of teaching, educational administration and educational finances
- acquire the cognitive and technical skills for performing and accomplishing complex tasks relating to the subject on education and other interdisciplinary courses
- Produce quality educational practitioners having sound knowledge of various dimensions of economics of education and economic policies

Syllabus

UNIT 1: ECONOMICS OF EDUCATION

Concept, scope and significance

UNIT 2: EDUCATION AND ECONOMIC DEVELOPMENT

Concept, relationship between education and economic development

UNIT 3: ECONOMICS OF EDUCATION POLICY

Nature of economic policy, education as a Public Good

UNIT 4: EDUCATION AS A PUBLIC GOOD

Meaning of public good, difference between public goods and private goods, education as public good, education as mixed good, education as merit good

UNIT 5: HUMAN CAPITAL FORMATION

Concept, Human capital Approaches to education

UNIT 6: EDUCATION AND MANPOWER PLANNING

Education and manpower planning, manpower planning and economic growth, problems of manpower planning in India

UNIT 7: FINANCING IN HIGHER EDUCATION AND TECHNICAL EDUCATION

Pattern of financing, need of financing, financial policy for higher and technical education in India

UNIT 8: LIVELIHOOD, LABOUR MARKET AND LABOUR MOBILITY

Sectoral growth, unemployment and underemployment, labour mobility in northeast India

UNIT 9: EDUCATION AND BRAIN DRAIN

Concept, factors for brain drain, out-migration of the skilled personnel

UNIT 10: ACCESS AND EQUITY IN EDUCATION
Meaning of equity, improving access in education and reservation policy in education in India

UNIT 11: SELF-FINANCING AND FIND MOBILIZATION IN THE EDUCATIONAL INSTITUTIONS
Fund mobilization in the educational institution

Reading List

Hunter, W.W.: Economic History of India, Vols.2, Cosmo Publication, 2008
Habison& Myers: Education, Manpower and Economic Growth
Peer,M: Higher Education and Employment, Rawat Publications, 2007-08
Rao, P: Economics of Primary Education, Rawat Publication, 1998.
Rajaiah, B: Economics of Education
Singh, R.P.: Educational Finance and the Planning Challenge, Eastern Book House, 2008
Shuukla, P.D.: New Education Policy in India.
Psachupouls, Y: Economics of Education

IDC 303 Business Communication and Media Management

Course Objectives

- To provide understanding of the field of business communication and business journalism
- To acquaint learners with the concept of media management and its role in the society
- To equip learners with necessary skills required to work in the field of business communication

Course Outcomes

On completion of this course, the learners will be able to

- recognize the various contexts in which business communication takes place
- determine the need of business communication and business journalism
- analyse the issues related with the media management
- equip themselves with skills required for a business journalist

Syllabus

UNIT 1: BUSINESS COMMUNICATION

Concept of Business Journalism, Success through proper communication, History of business communication, Need for business journalism, Essential Characteristics of Business Communication, The Benefits of Effective Communication, Present Scenario, Five rules of good writing or communication, Five Ps of marketing mix, Target audience, Specific Characteristics of a Target Audience, Consumerist culture

UNIT 2: MEDIA FOR BUSINESS

Concept, Importance of media in business, Types of media, Selection of Appropriate Communication Media, Incorrect choice of Medium, Setting Up business goals, Communication Structure In a Business Organisation, Communication in corporate world, Effective business or economic writing, Importance of writing skills in business communication, Purpose of writing, The Principles of effective writing, Economic newspapers, The Economic Times, The Business standard, Public Relations and Marketing, Ethics in communication, Audience Analysis.

UNIT 3: BUSINESS PRESENTATION-I

Report Writing, Process of Writing a Report, Determining the purpose of the report, Determining the factors, Gathering the information needed, Interpreting the findings, Organizing the report information, Writing the report, Project Report Writing, Criteria of a Good Project, Advantages of a Good Project, Disadvantages of Project Method, Format of a Project Report

UNIT 4: BUSINESS PRESENTATION II

Writing Executive Summaries, Making Business Presentations

UNIT 5: INTRODUCTION TO MANAGEMENT

Concept Of Management, Characteristic of Management, Scope of Management, Evolution Of Management Thought, Management Vs Administration, Levels Of Management, Functions Of Management, Planning, Organizing, Staffing, Controlling, Coordination, Management Styles in Indian context

UNIT 6: MEDIA MANEGEMENT

Media as an industry and profession, Importance of media management, Ownership patterns of mass media in India

UNIT 7: MEDIA ORGANISATIONS
Structure of a media organisation, an account of different national and international media and communication organisations

UNIT 8: ORGANISATONAL STRUCTURE OF A PRINT MEDIA ORGANIZATION
Organizational structure of print media establishments, Editorial Department, Business Department, Production Department, Reference Section, Role and coordination among the different departments, Printing, Packaging, Transportation and Distribution

UNIT 9: ORGANISATIONAL STRUCTURE OF AN ELECTRONIC MEDIA ORGANIZATION
Electronic media organization, News and programme sections, News section in a radio station, News section in a TV station, Programme section in TV and radio, Electronic News Gathering (ENG), Electronic Field Production (EFP), Personnel involved in production and news, Viewership/ Listenership, Content creation and role of advertising, Genre or types of programmes, Types of programmes in radio, Types of programmes in TV

UNIT 10: LEADERSHIP AND WORK MOTIVATION
Importance of leadership in a media organisation, job performance, impact of technology on the performance of the employees, division of labour

Reading List

Chaturvedi, P.D, Mukesh Chaturvedi (2006), Business Communication, Dorling Kindersley (India) Pvt Ltd, New Delhi

Chaturvedi, B.K (2009), Media Management, Global Vision Publishing House, New Delhi

Kumar, Dr. Rakesh (2010), Media Management, Surendra Publications, New Delhi

Lesikar, Raymond, V. , Marie E. Flayley (2005), Basic Business Communication, Tata McGraw-Hill Publishing Company Limited, New Delhi

Narula, Uma (2006), Business Communication Practices, Atlantic Publishers & Distributors, New Delhi

Riel, Cees B.M. van, Charles J. Fombrun (2007), Essentials of corporate Communication, Routledge, UK

Soori, Sanjeev (2010), Business Journalism, Axis Publications, New Delhi

Taylor, Shirley (2005), Communication for Business, Dorling Kindersley (India) Pvt Ltd, New Delhi

Yadav, K.P (2006), Media Management, Adhyayan Publishers & Distributors, New Delhi

IDC 304 Understanding North East India

Learning Objectives
This course intends to:

- enable the learners to know about the north-eastern region of India.
- enable the learners to understand the features and concerns that are common to all the eight states of this region

Learning Outcomes
After going through this unit, the learner will be able to:

- Know about the north-eastern region of India.
- Understand the features and concerns that are common to all the eight states of this region

Syllabus

UNIT 1: THE CONCEPT OF NORTHEAST INDIA
Northeast India in the Ancient, Colonial and Post period

UNIT 2: LOCATION AND ECOLOGY OF NORTHEAST INDIA AND ASSAM IN PARTICULAR
Location; Boundaries; Ecology of Northeast India; Flora, Fauna, Rare species and Ecological Hotspots

UNIT 3: STATE FORMATION DURING POST-INDEPENDENCE PERIOD
Creation of different states and Autonomous Councils

UNIT 4: DEMOGRAPHIC COMPOSITION OF NORTHEAST INDIA
Racial; Linguistic; Caste; Religious; Tribal groups of Assam

UNIT 5: SOCIAL INSTITUTIONS AMONG THE MAJOR TRIBAL GROUPS OF THE NORTH EASTERN STATES
Family, Marriage and Kinship; Religion, Economy and Polity among the major tribal groups of the north eastern states

UNIT 6: IMMIGRATION TO NORTHEAST INDIA AND ASSAM IN PARTICULAR
Immigrant groups, Occupation; Consequences of Immigration; Insider versus Outsider feuds

UNIT 7: ETHNIC IDENTITY IN NORTHEAST INDIA
Ethnicity: Meaning and Characteristics; Intercommunity relations and its changing nature; Ethnic Conflict

UNIT 8: INSURGENCY IN NORTHEAST INDIA
Origin and Development of insurgency in the region; Major insurgent groups

UNIT 9: LAND RELATION IN NORTHEAST INDIA
Land holding patterns, agrarian structure

UNIT 10: ECONOMIC PROBLEMS IN NORTH EAST INDIA
Unemployment, Infrastructure, Industrialization

UNIT 11: DEVELOPMENT IN NORTHEAST INDIA
North Eastern Council (NEC), The Ministry of Development of North Eastern Region (MDoNER), Look East Policy

Reading List

Baruah, Sanjib, 2005, Durable Disorder: Understanding the Politics of North East India, New Delhi: Oxford University Press.

Bordoloi, B. N., 1990, Constraints of Tribal Development in North-East India, Guwahati: Tribal Research Institute.

Fernandes, Walter and Gita Bharali, 2011, Uprooted for whose benefits-Development induced displacement in Assam-1947-2000, Guwahati: North Eastern Social Research Centre.

Fernandes, Walter and Sanjay Barbora, 2008, Tribal Land Alienation in the Northeast; An Introduction: An Introduction in Walter Fernandes and Sanjay Barbora (ed) Land, people and politics: Contest Over Tribal Land in Northeast India, Guwahati and Denmark: North Eastern Social Research Centre and International Workgroup for Indigenous Affairs, pp 1-15.

Goswami, Atul; August, 1984; Tribal Development with special Reference to North-East India in Social Scientist ; vol12, no8; pp 55-60.

Hussain, Monirul, 2008, Interrogating Development: State, Displacement and Popular Resistance in North East India, New Delhi: Sage Publication.

Karna, M. N. 1990, The Agrarian Scene in Seminar, vol 366, pp 30-37.

Karna, M.N., 1999, Ethnic identity and Socio-economic Processes in North-east India in Kailash S. Aggarwal edited Dynamics of Identity and Intergroup relations in North-east India, IIAS-Shimla, pp29-38.

IDC 305 Rural Development in India

Course Objectives

- Acquaint learners with the concept, nature and characteristics of rural society.
- Make the familiar with the causes of Rural Backwardness, Rural Problems, and prospectus of rural life.
- Conceptualise them with nature of the rural consumer, rural finance and rural credit.

Course Outcomes

- Analyse the concept, indicators and strategies of Rural Development.
- Inculcate the knowledge of Rural society and culture
- Evaluate problems of rural society and draw reasonable conclusion thereof.
- Develop understanding of various credit, loan and saving approaches for rural society.

Syllabus

UNIT 1: BASIC CONCEPTS OF RURAL DEVELOPMENT
Concept of Rural Development; Why Rural Development?, Some Dilemmas in Development – Rural Vs Urban Development, Agriculture Vs Industrial Development, Capital Vs Labour Dogma, Autonomous Vs Induced Development

UNIT 2: RURAL ECONOMY OF INDIA
Size and Structure of the Indian Rural Economy; Importance and Role of the Rural Sector in India; Economic, social and Demographic Characteristics of the Indian Rural Economy; Causes of Rural Backwardness (Indian Context)

UNIT 3: APPROACHES TO RURAL DEVELOPMENT
Community Development Programmes; Gandhian Approach to Rural Development; Balancing Rural and Urban Development

UNIT 4: COTTAGE INDUSTRIES IN INDIA
Role of Cottage Industries in Indian Economy; Various Cottage Industries of India; Government Policies for Cottage Industries

UNIT 5: RURAL INDEBTEDNESS IN INDIA
Meaning; Nature; Consequences of Rural Indebtedness; Programmes for Removal of Rural Indebtedness

UNIT 6: RURAL UNEMPLOYMENT IN INDIA
Characteristics; Incidence of Rural Unemployment in India; Employment Generation Measures

UNIT 7: POVERTY IN RURAL INDIA
Characteristics; Incidence of Rural Poverty in India; Poverty Eradication Measures

UNIT 8: ROLE OF TECHNOLOGY IN RURAL DEVELOPMENT
Importance of Rural Technology in Agriculture and Allied Sectors; Issues with Use of Technologies

UNIT 9: ROLE OF COMMERCIAL BANKS IN RURAL FINANCE IN INDIA
Progress of Commercial Banks; Priority Sector Lending; The Lead Bank Scheme; Analysis of Major Schemes of the Government of India undertaken since 1990 in different sectors – Agriculture, Animal Husbandry, Fishery, Cottage Industries; Difficulties faced in Implementation of these Schemes

UNIT 10: REGIONAL RURAL BANKS
Objectives and Functions of RRBs; Evaluation of Progress and Activities of RRBs; Critical Assessment of Functions of RRBs

UNIT 11: NABARD

Objectives and Functions of NABARD; Evaluation of Progress and Activities of NABARD; Critical Assessment of Functions of NABARD

Reading List

Arora ,R.C., K.(1979): Integrated Rural Development, S. Chand & Co.

Datt and Mahajan (2015): Indian Economy, 71st Ed., S. Chand & Co. Ltd.

Reddy, K. V.(2007):Rural Development in India (Poverty and development):Himalaya Publishing House.

Singh, K.(2010):Rural Development: Principles, Policies and Management, Sage Publications India Pvt. Ltd.

Sisodia, Y. S.(2007): Rural Development: Macro-Micro Realities, Rawat Publications.

Sundaram, I.S.: Rural Development. Himalaya Publishing House

IDC 306 Essentials of Indian Philosophy

Course Objectives

- To help the learners to know the Indian context of education in spiritual, religious and moral sense
- To help the learners to explore the basic education of human life through the systems of Indian philosophy

Course Outcomes

- To know that Indian philosophy shows us different paths to realize the highest truth in life under different schools
- Will know that Indian philosophy is essentially spiritual in nature
- Will know the different āstika and nāstika schools of Indian Philosophy

Syllabus

UNIT 1: THE NATURE AND SCOPE OF INDIAN PHILOSOPHY
Nature of Indian Philosophy, Scope of Indian Philosophy

UNIT 2: CARVAKA – EPISTEMOLOGY
Accidentalism and naturalism, The denial of inference, The denial of the validity of the Vedas

UNIT 3: BUDDHISM – FOUR NOBLE TRUTHS
A Brief Sketch of Buddhism, Concept of Four Noble Truths, There is Suffering, There is a Cause of Suffering, Dependent Origination, The Cessation of Suffering, Concept of Nirvana, The Path of Cessation of Suffering

UNIT 4: JAINISM – SYADVADA
A brief account of Jainism: Jaina Epistemology, Jaina Metaphysics, Syadvada or The Sapta-bhangi-naya, Criticism of Syadvada, Let us sum up

Unit 5: Nyaya – Concept of Prama
Definition of prama, Nyaya: Sources of knowledge, Anuman, Inference, Upamana, Testimony

UNIT 6: VAISESIKA – DRAVYA, GUNA, SAMANYA
Vaisesika Epistemology, Valid Knowledge, Invalid Knowledge, Kinds of Categories: What they are? Substance, Quality, Generality, Non-existence

UNIT 7: SAMKHYA – PURUSA & PRAKRTI
Nature and Characteristics of Prakrti, Proofs for the existence of Prakrti, Prakrti and the Gunas, Different products of Prakrti, Teleological Evolution, Criticism of the evolution theory, Nature and Characteristics of Purusa, Proofs for the existence of Purusa, Plurality of Purusa

UNIT 8: YOGA – THE CONCEPT OF CITTA-VRITTI
Brief Description on Yoga philosophy, Concept of Citta-Vritti, Astāṅga Yoga

UNIT 9: MIMAMSA – INTRINSIC VALIDITY OF KNOWLEDGE
Nature of Valid knowledge, Mimamsaka theory of Svatahpramanyavada, Nyaya theory of Paratahpramanyavada, Paratahpramanyavada and Svatahpramanyavada: A Comparison

UNIT 10: SAMKARA – BRAHMAN AND MAYA
AvdaitaVedānta, The Concept of Brahman, Nature of Brahman, Svarupalaksana of Brahman Tatastha Laksana of Brahman, NetiNeti Concept of Brahman, Meaning of Māyā, Māyā is a fact of experience, The two functions of Māyā, Nature of Māyā

UNIT 11: RAMANUJA – GOD

Ramanuja's Concept of God, Significance of God, God is qualified (visista), God is Trisatvatmaka, God has internal distinction (SvagataBheda), Aprthakasidhi, God is the cause of the world, Ramanuja's concept of God (Thesim), Forms of God, Archa, Vibhava, VyuhaSusksamaAntaryami

Reading list

S. Dasgupta: A History of Indian Philosophy
J. N. Sinha: Indian Philosophy
Radhakrishnan: Indian Philosophy
C.D. Sarma: A Critical Survey Of Indian Philosophy
S.Chatterjee: An Introduction to Indian Philosophy

Detailed Syllabi of Ability Enhancement Courses (AECs)

AEC 101 General English

Learning Objectives
The objectives of the course are to:

- introduce the learner to various poetical works written by some of the major English poets
- introduce a play written by the English dramatist William Shakespeare
- encourage the learner towards learning important techniques of comprehension and intelligent reading

Learning Outcomes
After going through the course, the learner will be able to:

- study the various poetical works written by some of the major English poets
- grasp the textual content and message contained in them
- appreciate the play Macbeth written by William Shakespeare
- discuss some important concepts of comprehension and intelligent reading

Syllabus

UNIT 1: WILLIAM BLAKE: "HOLY THURSDAY"
William Blake: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 2: WILLIAM COWPER: "THE SOLITUDE OF ALEXANDER SELKIRK"
William Cowper: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 3: WILLIAM WORDSWORTH: "SIMON LEE"
William Wordsworth: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 4: ALFRED TENNYSON: "TEARS IDLE TEARS"
Alfred Tennyson: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 5: W.B. YEATS: "AN IRISH AIRMAN FORESEES HIS DEATH"
W. B. Yeats: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 6: D.H. LAWRENCE: "THE SNAKE"
D.H. Lawrence: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 7: KEKI N. DARUWALLA: "WOLF"
Keki N. Daruwalla: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 8: CHINUA ACHEBE: "AS ONE LISTENS TO THE RAIN"
Chinua Achebe: Life and Works, Text of the Poem, Explanation of the Poem, Style and Language

UNIT 9: WILLIAM SHAKESPEARE: MACBETH I
William Shakespeare: Life and Works, Background of the Play

UNIT 10: WILLIAM SHAKESPEARE: MACBETH II
Explanation of the Text, Major Characters, Major Themes, Style and Language

UNIT 11: COMPREHENSION AND INTELLIGENT READING
Comprehension and Intelligent Reading, Reading and Grasping Skills

Reading List

Aggarwala, N.K. (2001). Essentials of English Grammar and Composition. New Delhi: Goyal Brothers.

Albert, Edward. (2000). History of English Literature. Fifth Edition. Oxford : Oxford University Press.

Birch, Dinah. (2009). The Oxford Companion to English Literature. Seventh Edition. Oxford : Oxford University Press.

De Sarkar, P. K. (2007). Higher English Grammar and Composition. Kolkata: Book Syndicate Limited.

Dowerah, Sawpon. A Students' Grammar of English. Guwahati: Students' Store

Eastwood, John. (1994). Oxford Guide to English Grammar. Oxford University Press.

Eckersley & Ekersley. (1960) (ed). A Comprehensive English Guide. Harlow: Pearson Education Limited.

Palmer, R. F. (1988). The English Verb. Longman Linguistics Library

AEC 201 MIL Assamese

Course Objectives
After going through this course, a learner will be able to:

- Familiar with the writing style of diverse Assamese literary texts
- Discover the underlying spirit of the writing of selected Assamese literary texts
- Develop basic ideas of Assamese grammar

Course Outcomes
After going through this course, a learner will be able to:

- Outline the trends of Assamese poetry, drama, novel, and prose
- Improve the writing style of Assamese

Syllabus

অধ্যায় ১: মাধৱদেৱ – তেজৰে কমলাপতি (বৰগীত)
কবি পৰিচয়, ‘তেজৰে কমলাপতি’ কবিতাটিৰ পাঠ: শব্দার্থ, বৰগীতৰ সাধাৰণ পৰিচয়, ‘তেজৰে কমলাপতি’ কবিতাটিৰ আলোচনা: বিষয় বস্তুৰ আভাস, কাব্যিক সৌন্দর্য

অধ্যায় ২: চন্দ্রকুমাৰ আগৰৱালা: বন কুঁৱৰী
ৰমন্যাসবাদ আৰু ৰমন্যাসবাদী কবিতাৰ বৈশিষ্ট্য, অসমীয়া ৰোমাণ্টিক কবিতাৰ সাধাৰণ আলোচনা, কবিপৰিচয়, ‘বনকুঁৱৰী’ কবিতাটিৰ পাঠ, ‘বনকুঁৱৰী’ কবিতাটিৰ আলোচনা: বিষয়বস্তু আৰু মূলভাব, ৰমন্যাসিক চিন্তাৰ প্রতিফলন

অধ্যায় ৩: নৱকান্ত বৰুৱা: ইয়াত নদী আছিল
আধুনিক কবিতাৰ পটভুমি, আধুনিক অসমীয়া কবিতা, নৱকান্ত বৰুৱাৰ কাব্য-চিন্তা, ‘ইয়াত নদী আছিল’ কবিতাটিৰ পাঠ, ইয়াত নদী আছিল: বিষয়বস্তু, সাধাৰণ আলোচনা

অধ্যায় ৪: নির্মলপ্রভা বৰদলৈ: মর্মান্তিক
নির্মলপ্রভা বৰদলৈৰ কাব্য-চিন্তা, ‘মর্মান্তিক’ কবিতাটিৰ মূলপাঠ, মর্মান্তিক: বিষয়বস্তু, সাধাৰণ আলোচনা

অধ্যায় ৫: গুৰু-শিষ্যৰ মণি-কাঞ্চন সংযোগ
গুৰু-শিষ্যৰমণি-কাঞ্চনসংযোগ: চৰিত পুথিৰ উদ্ভৱ আৰু বিকাশ, পাঠটিৰ উৎস, মূলপাঠৰ আভাস, বিষয়বস্তুৰ পৰিচয়, মাধৱদেৱৰ ব্যক্তিত্ব, মাধৱদেৱৰ গুৰুভক্তি, গদ্যৰীতি, কঠিন শব্দৰ টোকা

অধ্যায় ৬: বাণীকান্ত কাকতি : নামঘোষা
সাহিত্য সমালোচক বাণীকান্ত কাকতি, নামঘোষাৰ পৰিচয়, পুণ্যশ্লোক শংকৰ-স্মৃতি, মাধৱদেৱৰ আত্মলঘিমা, নামঘোষাৰ ৰসবিচাৰ

অধ্যায় ৭: লক্ষ্মীনাথ বেজবৰুৱা: কন্যা
লক্ষ্মীনাথ বেজবৰুৱা: কন্যা – লক্ষ্মীনাথ বেজবৰুৱাৰ জীৱন আৰু কৃতি,গল্পটোৰ সাধাৰণ আলোচনা

অধ্যায় ৮: ভবেন্দ্রনাথ শইকীয়া: ঢোৰাসাপ
ভবেন্দ্রনাথ শইকীয়া: ঢোৰাসাপ – ভবেন্দ্রনাথ শইকীয়াৰ জীৱন আৰু কৃতি, গল্পটিৰ সাধাৰণ আলোচনা

অধ্যায় ৯: ৰজনীকান্তবৰদলৈ: মনোমতী
ঔপন্যাসিক ৰজনীকান্ত বৰদলৈ আৰু তেওঁৰ উপন্যাসৰ প্রধান বৈশিষ্ট্যসমূহ, মনোমতী উপন্যাসৰ কাহিনীভাগ, ঐতিহাসিক উপন্যাস হিচাপে মনোমতী, মনোমতী উপন্যাসৰ চৰিত্র চিত্রণ, মনোমতী উপন্যাসৰ সামাজিক চিত্র

অধ্যায় ১০: জ্যোতিপ্রসাদ আগৰৱালা: শোণিত কুঁৱৰী
জ্যোতিপ্রসাদ আগৰৱালাৰ পৰিচয়, জ্যোতিপ্রসাদ আগৰৱালাৰ নাট্যপ্রতিভা, জ্যোতিপ্রসাদ আগৰৱালাৰ নাটকৰ বৈশিষ্ট্য, শোণিত কুঁৱৰী নাটকৰ কাহিনী, শোণিত কুঁৱৰী নাটকৰ চৰিত্র, শোণিত কুঁৱৰী নাটকৰ সংলাপ

অধ্যায় ১১: অসমীয়া ব্যাকৰণ

কৃৎপ্রত্যয়, তদ্ধিতপ্রত্যয়, বিভক্তি: নাম বিভক্তি বা কাৰক বিভক্তি, ক্রিয়া বিভক্তি, বিভক্তি আৰু প্রত্যয়ৰ পার্থক্য, উপসর্গ.সমাস :দ্বন্দ্বসমাস, দ্বিগুসমাস, বহুব্রীহিসমাস, কর্মধাৰয়সমাস, তৎপুৰুষসমাস, অব্যয়ী ভাবসমাস, লিঙ্গ

Reading List

Ahmed, Kamaluddin (2005). Adhunik Asomia Kobita. Guwahati: Banalata

Barua, Birinchi Kumar (1997). Asomia Katha Sahitya. Nalbari: Universal Emporium.

Baruah, Prahlad Kumar (2005). Asomia Chutigalpar Adhyayan. Guwahati: Banalata.

Bharali, Sailen (1993). Upanyash bischar aru bisleshan. Guwahati: Chandra Prakashan.

Bharali, Sailen (2009). Banikanta Kakatirpora Bhaben Barualoi. Guwahati: Chandra Prakashan.

Bora, Mahendra (1985). Sahitya Upakramanika Golaghat: Bharati Book Stall

Deka, Dharmasingha (2007) Rachana Bichitra. Guwahati.

Dutt, Uday (1995).Chutigalpa. Guwahati: Student's Stores.

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Goswami, Tralokyanath (2006). Adhunik Galpa Sahitya. Guwahati: Vani Prakash Limited.

Goswami, Upendranath (2007). Asomia Bhasar Byakaran. Guwahati: Mani-Manik Prakasha

Hazarika, Karbi Deka (2008). Assamese poets and poems. Dibrugarh: Banalata.

Mahanta, Baapchandra (Ed.) (2000). Borgeet. Guwahati: Student's Stores.

Majumdar, Bimal (2011). Sahityar Tattwa aaru Prayog. Guwahati: Jyoti Prakashan.

Neog, Maheswar (2000). Asomia Sahityar Ruprekha. Guwahati: Chandra Prakash.

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PhukanPatgiri, Dipti (1999) Adhunik Asomia Byakaran. Guwahati: Book Hive.

Rajbangshi, Paramananda (Ed.) (1995). Asomia Natak: Para. Guwahati: Chandra Prakashan.

Sharma, Dalai Harinath (1992). Asomia Gadya Sahityar Gatipath. Nalbari: Padmapriya Library.

Sharma, Satyendra Nath (1997). Asomia Upanyasar Bhumika. Guwahati: Soumar Prakash.

Sharma, Satyendra Nath (2009). Asomia Sahityar Samikshatmak Itibritta. Guwahati: Soumar Prakash

Sharma, Satyendranath (2005). Asomia Natya Sahitya. Guwahati: Soumar Prakash.

Talukdar, Nanda (2006). Kobi aaru Kabita. Guwahati: Banalata.

Thakur, Nagen (Ed.) (2000). Esha Basarar Asomia Upanyash. Guwahati: Jyoti Prakashan.

AEC 202 Alternative English

Learning Objectives
The objectives of the course are to:

- encourage the learners towards exploring various literary texts prescribed in the course
- stir an interest in the learners towards developing an analytical bent of mind in exploring these literary texts
- provide the scope of grasping various thematic concerns, contexts, issues and aspects reflected in the prescribed literary texts

Learning Outcomes
After going through the course, the learner will be able to:

- study the various literary texts prescribed in a detailed manner
- develop an analytical bent of mind in exploring these literary texts
- grasp various thematic concerns, contexts, issues and aspects reflected in the prescribed literary texts
- appreciate the ideas, reflections, literary representations and the core message contained in these texts

Syllabus

UNIT 1: E.P. GEE: "THE RHINO OF KAZIRANGA"
E. P. Gee: Life and Works, Explanation of the Essay, Style and Language

UNIT 2: THE KING JAMES BIBLE: "THE STORY OF CREATION"
The Story of Creation, Major Themes, Style and Language

UNIT 3: SALMAN RUSHDIE: "IMAGINARY HOMELANDS"
Salman Rushdie: Life and Works, Explanation of the Text, Major Themes, Style and Language

UNIT 4: BERTRAND RUSSELL: "PROLOGUE" TO AUTOBIOGRAPHY
Bertrand Russell: Life and Works, Text of the Prologue, Explanation of the Prologue, Major Themes, Style and Language

UNIT 5: MATTHEW ARNOLD: "LITERATURE AND SCIENCE"
Matthew Arnold: Life and Works, Explanation of the Text, Major Themes, Style and Language

UNIT 6: RICHARD KEARNEY: "ON STORIES"
Richard Kearney: Life and Works, Explanation of the Text, Major Themes, Style and Language

UNIT 7: MARTIN LUTHER KING: "I HAVE A DREAM"
Martin Luther: Life and Works, Context of the Speech, Explanation of the Speech, Style and Language

UNIT 8: LORD CHESTERFIELD: LETTER TO HIS SON
Lord Chesterfield: Life and Works, Text of the Letter, Explanation of the Text, Major Themes, Style and Language

UNIT 9: R.L. STEVENSON: EXTRACTS FROM TRAVEL WITH A DONKEY
R. L. Stevenson: Life and Works, Explanation of the Extract, Major Themes, Style and Language

UNIT 10: DEREK WALCOTT: "THE ANTILLES: FRAGMENTS OF EPIC MEMORY"
Derek Walcott: Life and Works, Explanation of the Speech, Major Themes, Style and Language

UNIT 11: ANTOINE DE SAINT EXUPERY: THE LITTLE PRINCE
Antoine de Saint Exupery: Life and Works, The Title of the Novella, The Context of the Novella, Explanation of the Novella

Reading List

Alfred, Julius Ayer. (1972). Russell. London: Fontana

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Bloom, Harold. (2003). Bloom's Modern Critical Views: Derek Walcott. Chelsea House Publishers.

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Hudson, W.H. Introduction to Study of Literature. Macmillan

Kearney, Richard. (2002). On Stories. London: Routledge.

Page, Norman. The Language of Literature. Casebook Series

Chatterjee, Partha. (1993). The Nation and its Fragments: Colonial and Postcolonial Histories. New Jersey: Princeton University Press

Syllabi of

Semester 2 : AEC 2 (MIL-Bengali)

For Four Year Undergraduate Programme

Name of the Course: Select Bengali Literary Texts, Grammar and Composition

নির্বাচিত বাংলা সাহিত্য, ব্যাকরণ ও রচনা

Course Objective:

After going through this course, a learner will be able to:

- Outline the history and trends of Bengali Literature from the beginning.
- Summarize a basic understanding of Bengali Grammar and Composition.

Course Outcomes:

- Develop knowledge of the history and recent trends of Bengali Literature.
- Explore the underlying spirit of Bengali Literature.
- Identify the heritage and basic spirit of the different aspects of Bengali Grammar and Composition.

Detailed Syllabus

অধ্যায় ১ ঃ **কবিতা — ১**

নবদ্বীপ — বৃন্দাবন দাস ঃ কবি-পরিচয়, সারসংক্ষেপ, কবিতার বিশ্লেষণ, শব্দার্থ; রুপাই — জসিমউদ্‌দীন ঃ কবি-পরিচয়, সারসংক্ষেপ, কবিতার বিশ্লেষণ, শব্দার্থ

অধ্যায় ২ ঃ **কবিতা — ২**

পুরাতন ভৃত্য — রবীন্দ্রনাথ ঠাকুর ঃ কবিতার সার-সংক্ষেপ, কবিতার বিশ্লেষণ, শব্দার্থ

অধ্যায় ৩ ঃ **উপন্যাস - *কপালকুণ্ডলা* — ১**

ঔপন্যাসিক বঙ্কিমচন্দ্র ঃ বঙ্কিমচন্দ্রের জীবনকথা, উপন্যাস-পরিচয়; কাহিনিসার

অধ্যায় ৪ ঃ **উপন্যাস - *কপালকুণ্ডলা* — ২**

চরিত্র-বিচার ঃ নবকুমার, কপালকুণ্ডলা, মতিবিবি বা লুৎফউন্নিসা, কাপালিক; অলৌকিকতা

অধ্যায় ৫ ঃ **বনফুল — জাগ্রত দেবতা**

বনফুলের জীবন ও সাহিত্য; জাগ্রত দেবতা ঃ গল্পের সার সংক্ষেপ, গল্প-বিশ্লেষণ

অধ্যায় ৬ ঃ **সাজাহান — ১**

নাট্যকারের পরিচিতি ও ইতিহাসের কাহিনি; ঐতিহাসিক নাটক হিসাবে ‘সাজাহান’; ‘সাজাহান’ নাটকের নায়ক বিচার ও নামকরণ; ‘সাজাহান’নাটকের সংগীত ও সংলাপ

অধ্যায় ৭ ঃ **সাজাহান — ২**

সাজাহান নাটকের চরিত্র-বিচার ঃ মুখ্য চরিত্র, গৌণ চরিত্র

অধ্যায় ৮ ঃ ***জীবনস্মৃতি* — ১**

গ্রন্থকার ও গ্রন্থ পরিচয়; *জীবনস্মৃতি* ঃ সাধারণ আলোচনা; ঘর ও বাহির — মূল পাঠ ঃ পাঠ বিশ্লেষণ; ভৃত্যরাজক তন্ত্র —মূলপাঠ ঃ পাঠ বিশ্লেষণ; নানা বিদ্যার আয়োজন— মূলপাঠ ঃ পাঠ বিশ্লেষণ

অধ্যায় ৯ ঃ ***জীবনস্মৃতি* — ২**

ভানুসিংহের কবিতা — মুলপাঠ ঃ পাঠ বিশ্লেষণ; স্বাদেশিকতা — মূল পাঠ ঃ পাঠ বিশ্লেষণ; মৃত্যুশোক — মূল পাঠ ঃ পাঠ বিশ্লেষণ

অধ্যায় ১০ ঃ **বাংলা ব্যাকরণ**

শব্দ, পদ, বাক্য ঃ পদ পরিবর্তন; বাগ্‌ধারা বা বিশিষ্টার্থক বাক্যাংশ; বাংলা বানান ঃ বানান রীতি, অশুদ্ধ বানান ও তার সংশোধিত রূপ; শব্দভাণ্ডার ঃ শ্রেণিবিভাগ, মৌলিক শব্দ, আগন্তুক শব্দ; সমার্থক ও বিপরীতার্থক শব্দ ঃ সমার্থক শব্দ, বিপরীতার্থক শব্দ

অধ্যায় ১১ ঃ **সংবাদ, অনুচ্ছেদ ও সারাংশ রচনা**

রচনার নানা প্রকারভেদ; সংবাদ রচনা; অনুচ্ছেদ রচনা

Reference Books for this Course

আনন্দ পাবলিশার্স প্রকাশনা; *বাংলা কী লিখবেন কেন লিখবেন।*

ঘোষ, অজিতকুমার; *বাংলা নাটকের ইতিহাস।*

ঘোষ, অজিতকুমার (সম্পাঃ); *দ্বিজেন্দ্র রচনাবলী, ২য় খণ্ড।*

চক্রবর্তী, অজিত কুমার; *কাব্যপরিক্রমা।*

চট্টপাধ্যায়, সুনীতিকুমার; *ভাষা-প্রকাশ বাংলা ব্যাকরণ।*

দাস, শিশির কুমার; *আত্মজীবনী ঃ জীবনী ও রবীন্দ্রনাথ।*

দাস, শ্রীশচন্দ্র ; *সাহিত্য-সন্দর্শন।*

দে, অধীব; *আধুনিক বাংলা প্রবন্ধ সাহিত্যের ধারা, ২য় খণ্ড।*

পশ্চিমবঙ্গ বাংলা আকাদেমি; *আকাদেমি বানান অভিধান।*

পশ্চিমবঙ্গ বাংলা আকাদেমি প্রকাশনা; *আকাদেমি বিদ্যার্থী বংলা অভিধান।*

পশ্চিমবঙ্গ বাংলা আকাদেমি প্রকাশনা; *প্রসঙ্গ ঃ বাংলা ভাষা।*

পশ্চিমবঙ্গ সংসদ; *সংসদ বানান অভিধান।*

পাল, প্রশান্তকুমার; *রবিজীবনী, ১-৯ খণ্ড।*

ভট্টাচার্য, আশুতোষ; *বাংলা নাট্যসাহিত্যের ইতিহাস (দ্বিতীয় খণ্ড)।*

ভট্টাচার্য, সুভাষ ; *বাঙালির ভাষা।*

মুখোপাধ্যয়, অরুণকুমার; *রবীন্দ্র পরিক্রমা।*

মুখোপাধ্যায়, অশোক; *সংসদ সমার্থ শব্দকোষ।*

মুখোপাধ্যায়, দুর্গাশঙ্কর; *দ্বিজেন্দ্রলাল রায় ঃ জীবন ও সাহিত্য।*

মুখোপাধ্যায়, প্রভাতকুমার; *রবীন্দ্র-জীবনী, ১-৪ খণ্ড।*

রায়, রথীন্দ্রনাথ; *দ্বিজেন্দ্রলাল ঃ কবি ও নাট্যকার।*

সিংহ, মীনাক্ষী; *রবীন্দ্র প্রবন্ধের রূপরেখা।*

সরকার, পবিত্র; *বাংলা বানান সংস্কার ঃ সমস্যা ও সম্ভাবনা*

সরকার, পবিত্র; *ভাষা-জিজ্ঞাসা ১, ২ ও ৩।*

সেন, সুকুমার; *ভাষার ইতিবৃত্ত।*

সেন, সুকুমার ; *বাঙ্গালা সাহিত্যের ইতিহাস, ৪র্থ খণ্ড।*

Syllabi of

Semester 2 : AEC 2 (MIL-Bodo)

For Four Year Undergraduate Programme

Name of the Course: Select Bodo Literary Texts, Grammar and Composition

(नायखां बिलाइ)

Course Objective:

After going through this course, a learner will be able to:

- Outline the history and trends of Bodo Literature from the beginning.
- Summarize a basic understanding of Bodo Grammar and Composition.

Course Outcomes:

- Develop knowledge of the history and recent trends of Bodo Literature.
- Explore the underlying spirit of Bodo Literature.
- Identify the heritage and basic spirit of the different aspects of Bodo Grammar and Composition.

Detailed Syllabus

खोन्दो 1 : **मोनाबिलि - इसान चन्द्र मोसाहारि**

खन्थाइगिरिनि सिनायथि; फरा; खन्थाइनि गुबै बाथ्रा; मोनाबिलि खन्थाइनि र'मान्टिक सानस्रि; खन्थाइनि सायाव बिजिरनाय

खोन्दो 2 : **अख्रां गंसे नांगौ - ब्रजेन्द्र कुमार ब्रह्म**

खन्थाइगिरिनि सिनायथि झ्र; फरा; खन्थाइनि गुबै बाथ्रा; गोदान खन्थाइनि सोमोन्दै सुंद फोरमायथिनाय; अख्रां गंसे नांगौ खन्थाइनि सायाव सावरायनाय

खोन्दो 3 : **थुनलायाव रहस्य सानथौ : कमल कुमार ब्रह्म**

लिरगिरिनि सुंद सिनायथि - कमल कुमार ब्रह्म; फरानि गुबै बाथ्रा; फरानि सायाव बिजिरनाय : थुनलायाव रहस्य सानथौ

खोन्दो 4 : **सुबुं माहारियाव खाना फोथायनाय - ब्रजेन्द्र कुमार ब्रह्म**

लिरगिरिनि सिनायथि - ब्रजेन्द्र कुमार ब्रह्म; फरानि गुबै बाथ्रा; फरानि सायाव बिजिरनाय : सुबुं माहारियाव खाना फोथायनाय

खोन्दो 5 : **मोदै आरो गोलोमदै - नीलकमल ब्रह्म**

लिरगिरिनि सिनायथि; सुंद सलनि सल; सलनि सायाव बिजिरनाय; आखु बिजिरनाय

खोन्दो 6 : **फर्बज'रानि बिहामजो - जनिल कुमार ब्रह्म**

लिरगिरिनि सिनायथि; सुंद सलनि सल; आखु बिजिरनाय; समाजारि सावगारि

खोन्दो 7 : **मैहुर - धरणीधर औवारी**

सलमागिरिनि सिनायथि; फरानि गुबै बाथ्रा; सलमानि सायाव बिजिरनाय; आखु बिजिरनाय; मैहुर सलमायाव समाजारि सावगारि

खोन्दो 8: **राजा निलाम्बर - दारेन्द्रनाथ बसुमतारि**

लिरगिरिनि सिनायथि; जारिमिनारि थुनफावथाय महरै राजा निलाम्बर; थुनफावथायनि सायाव बिजिरनाय; आखु एरनाय

खोन्दो 9 : **हरबादि खोमसि- कमल कुमार ब्रह्म**

थुनफावथाय लिरगिरिनि सिनायथि; थुनफावथायनि सायाव बिजिरनाय; समाजारि फावथाय महरै हरबादि खोमसि; आखु एरनाय; फावथायारि आदब

खोन्दो 10 : **बायदि मैया रनसाय आरो बाथ्रा फाव, बाथ्रा खोन्दो**

रनसाय आरो रायथाइनि फारागथि; रनसाय : बिजाब बाख्रि, आसामनि दैबाना, भारतनि हाबा गैजारोडिनि जेंना, फरायसा आरो राजखान्थि; बाथ्रा फाव, बाथ्रा खोन्दो, सुंथाबै लिरनाय आरो बेखेवनानै लिरनाय

खोन्दो 11 : **रावखान्थि**

बर' रावनि गारां आरो खौरां रिंसारथि : थायजा, सानराय, महर

Reference Books for this Course

औवारी, धरणीधर; *मैहुर।*

चैनारि, स्वर्ण प्रभा; *बर' फावथायनि बिजिरनाय।*

नारजारी, इन्द्रमालती; *लाइसिनि बिखायाव इन्द्रमालती।*

नारजारी, इन्द्रमालती; *मायनाव बरायनाय।*

नारजारी, इन्द्रमालती; *बर' हारिमु आरो थुनलाइ बिजिरनाय।*

फोसावगिरि बि. ए. सि. सिलेबास कमिटि; *खन्थाइ माला।*

बर', अनिल; *सेरजा सिफुं।*

बर', थुनलाइनि महर; *धरणीधर औवारी।*

बर', मधुराम; *जारिमिननि नोजोराव बर' थुनलाइ।*

बर', मधुराम; *गोजौ रावखान्थि।*

बर', मधुराम; *सुजु बिजाब।*

बड' टेक्स बुक प्रडाकसन कमिटि : *रायथाइ बिहुं*

बड' आयदा फोरोंगिरि गौथुम; *फोरोंलाइ Vol- VI।*

बसुमतारि, बिजितगिरि; *नोजोर आरो सानस्रि।*

बसुमतारी, सुनिल फुकन (सुजुनाय); *रायथाइ बिहुं।*

ब्रह्म, अनिल कुमार; *थुनलाइ आरो थुनलाइ बिजिरनाय।*

ब्रह्म, कमल कुमार; *कमल कुमार ब्रह्मनि जिव आरो सानस्रि।*

ब्रह्म, कमल कुमार; *गोनां रावखान्थि।*

ब्रह्म, कमल कुमार; *हरबादि खोमसि।*

ब्रह्म, नीलकमल; *हाग्रा गुदुनि मै।*

ब्रह्म, रुपनाथ आरो ब्रह्म, मदाराम (1992). *खन्थाइ-मेथाय (1992)*; झारबारि : नौनोगोर पाब्लिकेसन।

ब्रह्म, ब्रजेन्द्र कुमार; *थुनलाइ आरो सानस्रि।*

ब्रह्म, ब्रजेन्द्र कुमार; *थुनलाइ आरो थुनलाइ*

ब्रह्म, ब्रजेन्द्र कुमार; *रायथाइ माला।*

मोसाहारि, इसान; *सनानि माला।*

मोसाहारि, गुनेश्वर; *थुनलाइ बिजिरनाय।*

मसाहारि, तुलन; *बर' फावथाय थुनलाइ।*

लाहारी, मन'रन्जन; *बर' थुनलाइनि जारिमिन।*

हाजवारि, मंगलसिं (1996). *जथाइबिदां*; कक्राझार : बड' पाब्लिकेसन्स बर्ड, बड' साहित्य सभा।

हायार सेकेण्डारि थाखोफोरनि थाखाय; *सुजुनाय बिजाब।*

33 थि बिसान बर' थुनलाइ आफादनि खुगा लाइसि; *डि बड'।*

Syllabi of

Semester 2 : AEC 2 (MIL-Hindi)

For Four Year Undergraduate Programme

Name of the Course: Gadya-Padya Abang Hindi Byakaran
(गद्य, पद्य एवं हिन्दी व्याकरण)

Course Objective:

After going through this course, a learner will be able to:

- Outline the history and trends of Hindi Literature from the beginning.
- Summarize a basic understanding of Hindi grammar.

Course Outcomes:

- Develop knowledge of the history and recent trends of Hindi literature.
- Explore the underlying spirit of Hindi Literature.
- Identify the heritage and basic spirit of the different aspects of Hindi grammar.

Detailed Syllabus

इकाई 1 ः **भक्ति काव्य**

सूरदास : जीवन दर्शन एवं साहित्य, भ्रमर गीत, पाठ का सारांश ; तुलसीदास : जीवन दर्शन एवं साहित्य, केवटप्रसंग, पाठ का सारांश

इकाई 2 ः **सूर्यकान्त त्रिपाठी 'निराला' : 'तोड़ती पत्थर'**

सूर्यकान्त त्रिपाठी 'निराला' : जीवन दर्शन एवं साहित्य, 'तोड़ती पत्थर' का पाठ, पाठ का सारांश

इकाई 3 ः **रामधारी सिंह 'दिनकर' : किसको नमन करुँ मैं**

रामधारी सिंह 'दिनकर' : जीवन दर्शन एवं साहित्य, **'किसको नमन करुँ मैं'** का पाठ, पाठ का सारांश

इकाई 5 ः **मुक्तिबोध : 'अंधेरे में'**

मुक्तिबोध : जीवन दर्शन एवं साहित्य, 'अंधेरे में' पाठ, पाठ का सारांश

इकाई 4 ः **भगवती चरण वर्मा : चित्रलेखा**

भगवती चरण वर्मा : व्यक्तित्व एवं कृतित्व, भगवती चरण वर्मा की औपन्यासिक विशष्ताएँ ; चित्रलेखा : कथावस्तु तथा जीवन दर्शन, चरित्र चित्रण, कथोपकथन, वातावरण, भाषाशैली, भावात्मक शैली एवं लक्ष्य

इकाई 5 ः **प्रेमचन्द : ठाकुर का कुआं**

प्रेमचन्द : जीवन दर्शन एवं साहित्य, ठाकुर का कुआं – कहानी, प्रतिपाद्य विषय की समीक्षा

इकाई 6 ः **आचार्य रामचन्द्र शुक्ल : मित्रता**
आचार्य रामचन्द्र शुक्ल ; मित्रता : कथ्य एवं उद्देश्य ; मित्रता : महत्त्वपूर्ण प्रसंग

इकाई 7 ः **आचार्य शिवपूजन सहाय : साहित्य**
आचार्य शिवपूजन सहाय : का जीवन एवं साहित्य ; साहित्य : कथ्य एवं उद्देश्य ; साहित्य : महत्वपूर्ण प्रसंग

इकाई 8 ः **डॉ. बिरिंचि कुमार बरूआ : कौआ**
डॉ. बिरिंचि कुमार बरूआ : जीवन एवं साहित्य ; कौआ : कथ्य एवं उद्देश्य ; कौआ : महत्वपूर्ण प्रसंग

इकाई 9 ः **डॉ. राम कुमार वर्मा : कौमुदी महोत्सव**
एकांकी की परिभाषा ; एकांकी के तत्व ; डॉ. राम कुमार वर्मा: जीवन एवं साहित्य; कौमुदी महोत्सव : कथावस्तु : चरित्र चित्रण, संलाप, वातावरण, उद्देश्य, भाषा शैली, रंगमंच निर्देश

इकाई 10 ः **जगदीश चन्द्र माथुर : बन्दी**
जगदीश चंन्द्र माथुर : व्यक्तित्व एवं कृतित्व ; बन्दी : एकांकी की कथावस्तु एवं विश्लेषण : चरित्र चित्रण, संवाद, वातावरण, भाषा शैली, उद्देश्य, रंगमंच निर्देश

इकाई 11 ः **हिन्दी व्याकरण**
कारक और विभक्ति, लिंग, वाक्य विचार, लोकोक्ति और मुहावरा

Reference Books for this Course

अमृत राय : *प्रेमचन्द : कलम का सिपाही*

अली सरदार जाफरी : *कबीर वाणी*

अशोक चक्रधर : *मुक्तिबोध की काव्य प्रक्रिया*

आचार्य रामचन्द्र शुक्ल : *हिन्दी साहित्य का इतिहास*

आचार्य हजारी प्रसाद द्विवेदी : *हिन्दी साहित्य उद्भव एवं विकास*

आचार्य हजारी प्रसाद द्विवेदी : *हिन्दी साहित्य की भूमिका*

डॉ कपिलदेव द्विवेदी : *भाषाविज्ञान एवं भाषाशास्त्र*

कुमार कृष्ण : *कहानी के नये प्रतिमान*

डॉ. केदारनाथ सिंह : *आधुनिक हिन्दी कविता में बिम्ब विधान*

गणपतिगुप्त : *हिंदी साहित्य का इतिहास*

डॉ. नगेन्द्र (सं) : *हिन्दी साहित्य का इतिहास*

नलिन विलोचन शर्मा : *हिन्दी उपन्यास : तथा प्रेमचन्द*

प्रसाद, वासुदेव नन्दन ;*आधुनिक हिन्दी व्याकरण और रचना* ; पटना :भारती भवन।

डॉ वासुदेवनन्दन प्रसाद : *सरल हिन्दी व्याकरण और रचना*

AEC 301 Life Skills

Course Objectives

The objectives of the course are to:

- Enhance the ability of developing self-knowledge and self-awareness by overcoming all fears and insecurities
- Increase emotional competency and emotional intelligence at the place of study/work
- Provide the opportunity for realizing self-potential through practical examples
- Develop interpersonal skills and adopt good leadership behaviour for self-empowerment and the empowerment of others

Course Outcomes

After successfully completing the course, learners will be able to

- Gain Self-competency and Confidence
- Gain Emotional Competency
- Gain Intellectual Competency
- Gain an Edge through Professional Competency
- Aim for a High Sense of Social Competency
- Imbibe the attributes of an Integral Human Being

Syllabus

UNIT 1: LISTENING AND SPEAKING

Techniques of Effective Listening and speaking, Listening and Comprehension, Probing Questions, Barriers to Listening, Pronunciation, Enunciation, Vocabulary, Fluency, Common Errors

UNIT 2: READING, WRITING AND DIFFERENT MODES OF WRITING

Techniques of Effective Reading, Gathering Ideas and Information from a Given Text, Evaluating and Interpreting the Text; Avoiding Ambiguity, Vagueness, Unwanted Generalizations, and Oversimplification of Issues; Being structured and sequenced; Using Different Modes of Writing like E-mails, Proposal, Recording the Proceedings of Meetings

UNIT 3: DIGITAL LITERACY AND SOCIAL MEDIA, DIGITAL ETHICS AND CYBER SECURITY

Basic Computer Skills on MS Office Suite, MS Excel, MS Word, MS PowerPoint; Basic Virtual Platforms like Zoom, Google Meet, Cisco Webex, MS Teams; Cyber Security and Threats, Vulnerabilities of Cyber Attacks; Digital Ethics, Digital Etiquette and Digital Life Skills

UNIT 4: NONVERBAL COMMUNICATION

Meaning of Nonverbal Communication; Advantages of Using Nonverbal Communication, Modes of Nonverbal Communication like Eye Contact and Facial Expression, Hand Gestures; Do's and Don'ts in NVC

UNIT 5: GROUP DISCUSSION SKILLS AND INTERVIEW SKILLS

Meaning and Methods of Group Discussion; Procedure of Group Discussion; Group Discussion — Common Errors; Meaning and types of interviews; Dress code, background research; Do's and Don'ts; Situation, task, action, and response (STAR concept) for facing an interview; Interview procedure; Important questions generally asked at a job interview; common errors that candidates generally make at an interview

UNIT 6: EXPLORING CAREER OPPORTUNITIES, RÉSUMÉ SKILLS

Knowing yourself — Personal characteristics; Knowledge about the world of work, requirements of jobs, including self-employment; Sources of career information; Preparing for a career based on potential and availability of opportunities; Introduction of résumé and its importance; Difference between a CV, résumé and biodata; Essential components of a good résumé; Common errors while preparing a résumé

UNIT 7: COGNITIVE AND NON-COGNITIVE SKILLS, PRESENTATION SKILLS, AND LISTENING AS A TEAM SKILL

Cognitive Skills: Meaning and Types of Cognitive Skills, Strategies to Develop Cognitive Skills like Critical Thinking Skills, Problem-solving skill; Non-cognitive Skills: Meaning and Types of Non-cognitive Skills; Strategies to Develop Non-cognitive Skills like Empathy, Creativity, Teamwork; Types of Presentations; Knowing the Purpose; Knowing the Audience; Opening and Closing a Presentation; Using Presentation Tools; Handling Questions; Ways to Improve Presentation Skills over Time

UNIT 8: TRUST AND COLLABORATION, BRAINSTORMING, SOCIAL AND CULTURAL ETIQUETTES, INTERNAL COMMUNICATION

Importance of Trust in Creating a Collaborative Team; Spirit of Teamwork; Understanding Fear of Being Judged and Strategies to Overcome Fear; Advantages of Effective Listening; Listening as a Team Member and Team Leader; Brainstorming as a Technique to Promote Idea Generation; Need for Etiquette; Aspects of Social and Cultural/Corporate Etiquette in Promoting Teamwork; Use of Various Channels for Transmitting Information to Team Members

UNIT 9: LEADERSHIP SKILLS, INNOVATIVE LEADERSHIP AND DESIGN THINKING

Understanding Leadership and its Importance; Traits and Models of Leadership; Key characteristics of an effective leader; Leadership styles; Basic Leadership Skills like Motivation, Teamwork, Negotiation, Networking; Concept of emotional and social intelligence; Design thinking and its key elements; Learning through Biographies - Drawing insights on how leaders sail through difficult situations

UNIT 10: MANAGERIAL SKILLS

Basic managerial skills like planning for effective management, organizing teams, recruiting and retaining talent, delegation of tasks, coordinating, managing conflict; Self-management skills like understanding self-concept, developing self-awareness, self-examination, self-reflection and introspection, self-regulation, managing personal finance; Aspects of budgeting like setting personal goals, estimating likely expenses and managing saving, investment and spending

UNIT 11: ENTREPRENEURIAL SKILLS, ETHICS AND INTEGRITY

Basics of entrepreneurship- meaning of Entrepreneurship, classification and types of entrepreneurships, traits and competencies of entrepreneur; creating business plan - problem identification and idea generation, idea validation, pitch making; ethics and conduct - importance of ethics, personal and professional moral codes of conduct, creating a harmonious life

UNIT 12: LOVE AND COMPASSION, TRUTH, NON-VIOLENCE

Forms of love; love, compassion, empathy, sympathy and non-violence, narratives and anecdotes from history and literature including local folklore on gains and losses in practising love; Truth- truth as value, truth as fact- narratives and anecdotes from history and literature including local folklore on gains and losses in practicing truth; Non-violence – Ahimsa, individuals and organizations that are known for their commitment to non-violence; Narratives and anecdotes about non-violence from history and literature, including local folklore on gains and losses in practicing non-violence

UNIT 13: PEACE, SERVICE, RENUNCIATION

Peace- its need, relation with harmony, and balance; Narratives and anecdotes about peace from history and literature, including local folklore on gains and losses in practicing peace; Service and its forms; Narratives and anecdotes dealing with instances of service from history and literature, including local folklore on gains and losses in practicing service; Renunciation and sacrifice; self-restrain and ways of overcoming greed; narratives and anecdotes from history and literature, including local folklore on gains and losses in practicing renunciation and sacrifice

UNIT 14: CONSTITUTIONAL VALUES, JUSTICE AND HUMAN RIGHTS, RIGHTEOUSNESS

Righteousness, dharma and propriety; Fundamental Values like Justice, Liberty, Equality, Fraternity, Human Dignity; Fundamental Rights and Fundamental Duties as stated in Indian Constitution

Reading List

Sen, Madhuchanda. 2010. An Introduction to Critical Thinking. Delhi: Pearson.

Silvia, P. J. 2007. How to Read a Lot. Washington DC: American Psychological Association

EH McCrath, 1999; Basic Managerial Skills for All; Prentice Hall of India

Ashokan, M. S. 2015. Karmayogi: A Biography of E. Sreedharan. London, UK: Penguin

Chandra, P. 2017. Financial Management: Theory & Practice. 9th edition. New York: McGraw Hill Education

Leading with Cultural Intelligence: The New Secret to Success, New York: American Management Association

McCormack, M.H. 1986. What They Don't Teach You at Harvard Business School: Notes from A Street-Smart Executive. New York: Bantham

Sinek, S. 2009. Start With Why: How Great Leaders Inspire Everyone to Take Action. London: Penguin

Basham, A.L. 1954. First edition. The Wonder That Was India. London: Picador Press.

Ghosh, Shantikumar. 2004. Universal Values. Kolkata: The Ramakrishna Mission.

Ghosh, Sri Aurobindo. 1998. The Foundations of Indian Culture. Pondicherry: Sri Aurobindo Ashram.

Joshi, Kireet. 1997 Education for Character Development, Delhi: Dharma Hinduja Centre of India Studies

AEC 401 Studies of Assamese Culture

Course Objectives
The course aims at enabling a learner to:

- Discover the underlying spirit of Assamese culture and milieu
- Explain the different aspect of Assamese culture

Course Outcomes
After going through this course, a learner will be able to:

- Identify the rich cultural heritage of Assam.
- Formulate the difference between heritage and contemporary trends.

Syllabus

অধ্যায় ১: ঐতিহাসিক প্রেক্ষাপটত অসম
প্রাগ্‌জ্যোতিষপুৰ, কামৰূপ, অসম নামৰ উৎপত্তি, অসমৰ ভৌগোলিক অৱস্থিতি, জাতি – জাতিৰ ধাৰণা, অসমীয়া জাতি, অসমীয়া জাতি গঠন প্রক্রিয়া

অধ্যায় ২: সংস্কৃতি – চমুপৰিচয়
সংস্কৃতি – সাধাৰণ পৰিচয়, সংস্কৃতিৰ সংজ্ঞা, সংস্কৃতিৰ স্বৰূ, .সংস্কৃতিৰ উপাদান, সংস্কৃতিৰ বৈশিষ্ট্য, সংস্কৃতিৰ বিভিন্ন ভাগ :অভিজাত সংস্কৃতি বা মার্গীয় সংস্কৃতি, লোক সংস্কৃতি বা জনকৃষ্টি, জনজাতীয় সংস্কৃতি

অধ্যায় ৩: অসমৰ সংস্কৃতি – বৈচিত্র্যৰ মাজত ঐক্য
অসমৰ সংস্কৃতি – সমন্বয় আৰু সমাহৰণৰ বিভিন্ন বিষয়: ভাষা, সাহিত্য, ধর্ম, উৎসৱ-অনুষ্ঠান, সামাজিক লোকাচাৰ, নৃত্য-গীত, খাদ্য, সাজ-পাৰ

অধ্যায় ৪: অসমীয়া সংস্কৃতিত বিভিন্ন জাতীয়-জনগোষ্ঠীয় উপাদান আৰু অৱদান
অসমীয়া সংস্কৃতিত বিভিন্ন জনজাতীয় উপাদান, টাই (আহোম) উপাদান, মুছলমানসকলৰ অৱদান

অধ্যায় ৫: অসমৰ ধর্মীয় পৰম্পৰা
শৈৱধর্ম: অসমৰ শৈৱধর্ম, অসমৰ শৈৱ মঠ-মন্দিৰ, অসমৰ শৈৱ সাহিত্য; শাক্তধর্ম: অসমৰ শাক্তধর্ম, অসমৰ শক্তিপীঠ আৰু মঠ-মন্দিৰ, অসমৰ শাক্ত সাহিত্য; বৈষ্ণৱধর্ম :অসমৰ বৈষ্ণৱ আৰু নৱ-বৈষ্ণৱ ধর্ম, অসমৰ বৈষ্ণৱ সাহিত্যৰ চমু আভাস

অধ্যায় ৬: সত্রীয়া সংস্কৃতি
সত্রীয়া সংস্কৃতি:সত্রৰ সংজ্ঞা, উৎপত্তি, সত্রৰ বিভিন্ন বিভাগ আৰু বিস্তৃতি, সত্রৰ বিষয়ৱবীয়া তথা প্রশাসন, সত্রৰ নিত্যকর্ম – সত্রীয়া নাম-প্রসংগ, সত্রৰ নৈমিত্তিক কার্য তথা সত্রৰ উৎসৱ-অনুষ্ঠান, সত্রৰ কেতবোৰ পালনীয় আচাৰ-ৰীতি, সত্রীয়া গীত, নৃত্য, বাদ্য আৰু ভাওনা

অধ্যায় ৭: নামঘৰ — চমুপৰিচয়
নামঘৰ : চমুপৰিচয়, নামঘৰৰ কার্যপ্রণালী — ধর্মীয়-চর্চা তথা শিল্প-চর্চাৰ কেন্দ্র, নামঘৰৰ সামাজিক কতৃর্ত্ব

অধ্যায় ৮: সত্রীয়া পৰিৱেশ্যকলা
সত্রীয়া পৰিৱেশ্য কলা; সত্রীয়া সংগীত: বৰগীত, কীর্তন, নামঘোষা আৰু আনুষংগিক ধাৰা; সত্রীয়া নৃত্য আৰু বাদ্য; অংকীয়া নাট আৰু ভাওনা

অধ্যায় ৯: লোক সংস্কৃতিৰ চমু আভাস
লোক সংস্কৃতি – সাধাৰণ পৰিচয়; অসমৰ লোক সংস্কৃতি: বাচিক সংস্কৃতি, ভৌতিক সংস্কৃতি, সামাজিক লোক প্রথা বা লোকাচাৰ, লোক পৰিৱেশ্য কলা

অধ্যায় ১০: মৌখিক সাহিত্য
মৌখিক সাহিত্য; অসমীয়া মৌখিক সাহিত্য

অধ্যায় ১১: সামাজিক লোকাচাৰ
সামাজিক লোকাচাৰ: লোক বিশ্বাস আৰু লোক ধর্ম, লোক উৎসৱ-অনুষ্ঠান, অৱসৰ-বিনোদন আৰু খেল-ধেমালি, লোক ঔষধ আৰু লোক চিকিৎসা

অধ্যায় ১২: ভৌতিক সংস্কৃতি
ভৌতিক সংস্কৃতি: লোক শিল্প, লোক কলা, লোক স্থপতিবিদ্যা, লোক আভৰণ, লোক ৰন্ধনপ্রণালী

অধ্যায় ১৩: লোক পৰিৱেশ্য কলা
লোক পৰিৱেশ্য কলা; অসমৰ লোক পৰিৱেশ্য কলা: লোক সংগীত, লোক নাট্য

অধ্যায় ১৪: অসমৰ কেইটিমান নির্বাচিত লোক পৰিৱেশ্য কলা
অসমৰ কেইটামান নির্বাচিত লোক পৰিৱেশ্য কলা: ওজাপালি, কুশানগান, ঢুলীয়াভাওনা, খুলীয়াভাওনা

Reading List

Asom Sahitya Sabha (1962), Asomor Janajati. Jorhat.
Baruah, Birinchi Kumar (1985). Asomor Loka Sanskriti. Guwahati¨Bina Library
Bhattacharjya, Pramod Chandra (1999). Asomor Janajati. Guwahati Lawyer's Book Stall.
Gogoi, Lila (1994). Asomor Sanskriti. Dibrugarh: Banalata.
Goswami, Narayan Chandra (2005). Satra Sanskritr Swarnarekha. Guwahati: Lawyer's Book Stall.
Hakacham, Upen Rabha (2000). Asomor Janajatiya Sanskriti. Guwahati: Bani Mandir.
Narjee, Bhaben (1966). Bodo-Kacharir Samaj aaru Sanskriti, Guwahati: Lawyer's Book Stall.
Neog, Hariprasad and Gogoi, Lila (Compl. And Ed.) (1989). Asomia Sanskriti.: Dibrugarh: Banalata.
Padun, Nahendra (1993). Asomia Sanskritiloi Janajtiya Borongani. Guwahati: Lawyer's Book Stall.

AEC 402 Spoken English

Learning Objectives

The objectives of the course are to:

- acquaint the learners with the basic elements that make up English speech
- provide a general study on some of the key areas of English functional grammar
- enable the learner to develop a proper idea on the use of various grammatical forms
- develop in learners the necessary skills and techniques of oral communication, day-to-day conversations, interview etc. in English
- encourage the development of public speaking skills and speech skills on special occasions
- highlight the importance of Spoken English

Learning Outcomes

- After going through the course, the learner will be able to:
- discuss the importance of English in the 21st century global context
- develop a proper idea on the use of various grammatical forms
- develop the necessary skills and techniques of oral communication, day-to-day conversations, interview etc. in English
- appreciate the importance of Spoken English in the present context

Syllabus

UNIT 1: IMPORTANCE OF SPOKEN ENGLISH

Knowing the importance of English in the Global Context, Skills of Better Communication

UNIT 2: ISSUES ON ORAL COMMUNICATION I

Skills Involved in Oral Communication, Listening and Speaking Skills, Reading and Writing Skills, The Process of Speech, Non-verbal Communication

UNIT 3: ISSUES ON ORAL COMMUNICATION II

Conversation as a speech event, Turn-Taking, The Language of Conversation, Phrasal Verbs

UNIT 4: GRAMMAR IN CONTEXT I

Grammaticality and Appropriateness, Eliciting Information, Question Patterns in Context, Some Verb Forms in Context

UNIT 5: GRAMMAR IN CONTEXT II

Modals in Conversation, Uses of Will and Would, Uses of May, Might and Must, Uses of Other Modals, Uses of Shall, Should and Shouldn't, Miscellaneous Uses of Modals

UNIT 6: INFORMAL AND FORMAL SPEECH

Features of Informal speech, Ellipsis, Discourse Markers in Informal Speech, Discourse Markers of Formal Speech

UNIT 7: SOUNDS OF ENGLISH I

Units of Speech Sounds, The Vowel Sounds, The Consonant Sounds, Minimal Pairs, Vowel Contrasts, Consonant Contrasts

UNIT 8: SOUNDS OF ENGLISH II

Word Stress, Placement of Word Stress, Stress in Compound Words, Grammatical Function of Stress, Sentence Stress and Intonation

UNIT 9: COMMUNICATION SKILLS

What is Communication? Types of Communication, Written Communication, Spoken Communication, Non-Verbal Communication, Essentials of Written Communication, Essentials of Oral Communication

UNIT 10: TELEPHONE SKILLS
Understanding Telephone Communication, Handling Calls, Making Requests, Request to Do Things, Giving Instructions

UNIT 11: INTERVIEW SKILLS
The Art of Interviewing, Examples of Interviews—Job Interviews, Media Interviews

UNIT 12: PUBLIC SPEAKING
The art of Public Speaking, Techniques of Persuasive Speech, Techniques of Informative Speech

UNIT 13: SPEECHES FOR SPECIAL OCCASIONS
Public Speaking on Special Occasions—Address of Welcome, Introducing the Speaker, Vote of Thanks, Group Discussion

UNIT 14: DIALOGUES IN CONTEXTS
Importance of Dialogues in Social Interactions, Some Dialogues of Contexts—At the Post Office, At the Doctor's, Buying a Shirt, At the Market, In the Library, At the Railway Station, At the Tea Stall, An Interview, At the Book Seller's, At the Garage, Hiring a Taxi, At the Restaurant, At the Bank, At the Hotel

Reading List

Carmen, Robert. (ed.) Spoken English: Flourish Your Language. Abhishek Publication: Chandigarh.
Eastwood, J. (1994). Oxford Guide to English Grammar. Oxford University Press.
Karal, Rajeevan et al. (2016). English for Successful Communication. Oxford University Press.
Koneru, Aruna. (2013). Professional Speaking Skills. Oxford University Press
Sasikumar, V. and Dhamija, P.V. (1993). Spoken English: A Self- Learning Guide to Conversation Practice. Tata McGraw-Hill Publishing Company Limited.
Seely J. (2004). Oxford Guide to Effective Writing and Speaking. Oxford University Press.
Sethi, J. et al. (2004). A Practical Course in English Pronunciation. Prentice Hall of India.
Sethi, J and P.D. Dhamija. (1999). A Course in Phonetics and Spoken English. Prentice Hall.

AEC 403 English for Media Studies

Course Objectives

- To familiarise the learners with the process of writing for the media
- To identify the specific use of English in the field of media
- To equip learners with basic writing skills required for media

Course Outcomes

- On completion of this course, the learners will be able to-
- Familiarize oneself with the process of writing for different forms of media
- Make proper utilization of the English language in media
- Acquire the basic writing skills in English for various media forms

Syllabus

Unit 1: INTERVIEWING AND NOTE TAKING
Definition of Interview, preparing for interview, conducting the interview, text of interview, language for audio-visual interview, note taking

Unit 2: EDITORIAL WRITING
Defining Editorial, Introduction to the editorial page, writing the editorial, rules for Editorial writing, writing the Feature, writing the Article, writing the middle, Letters to the Editor

Unit 3: ART OF COLUMN WRITING
Types of columns, distinguishing characteristics of an op-ed, steps to be followed while writing a column

Unit 4: ELEMENTS OF GOOD WRITING
Characteristics- precision, clarity in writing, use of simple sentences, grammar and punctuation, avoiding clichés, pacing, use of transitions

Unit 5: PREPARING COPY
Copy editing- use of quotes, paraphrases, attribution, writing the lead, grammatical mistakes- confusion in the use of 'who' and 'whom', possessive pronouns, use of active voice, copy reading symbols

Unit 6: MASTERING THE LANGUAGE OF EDITING
Importance on vocabulary, sentence construction, participles, pronouns, verbs, nouns, foreign words, prepositions, paragraphs, selection of right words

Unit 7: REVIEW WRITING
Book review- fiction, adverse criticism, non-fiction, the collection, poetry, drama, Steps to be followed while doing a book review, drama review, Film review

Unit 8: NEWS WRITING
Language and style of Indian Media, Language and style for print and cyber media, Language and style for Radio, Language and style for Television

Unit 9: HEADLINE WRITING
Meaning of headline, Types of headline, Functions of a headline, Factors to be kept in mind while writing headlines, Headline writing skills- use of verbs, use of Articles and Voices, Use of Decks, The Five Ws, use of short synonyms, Abbreviations, Punctuation, Line Balance, Guidelines for headline writing

Unit 10: WRITING FOR ADVERTISING COPY
Introduction, Key concepts in advertising, Copywriting, Radio copy, Television copy

Unit 11: WRITING AND REWRITING FOR PUBLIC RELATIONS
Preparing news releases- Announcement releases, Backgrounders, Position Papers, Tip Sheets, Rewriting news releases, Writing newsletter stories

Unit 12: GRAMMAR AND USAGE
Sequence of tenses, Voice, Narration, Punctuation, Vocabulary

Unit 13: COMMON ERRORS IN THE USE OF ENGLISH LANGUAGE
Errors of concord, Errors of construction, Errors of order, Errors in prepositions, Errors in conjunctions

UNIT 14: REPORTING PUBLIC SPEECH
Reporting public speeches- background information, covering the speech, using a prepared text, writing the speech story for print

Unit 15: STYLE AND THE STYLEBOOK
Need of a stylebook, -consistency, preference and tradition, Guidelines of different stylebooks, Mechanical rules

Reading List

Chaturvedi, S.N. (2007), Dynamics of Journalism and Art of Editing, Cyber Tech Publications, New Delhi

Hough, George A. (2006), News Writing, Kanishka Publishers, Distributors, New Delhi

Kamath, M.V (2005), The Journalist's Handbook, Vikas Publishing House Pvt Ltd, New Delhi

Lorenz, Alfred Lawrence, John Vivian (2006), News : Reporting and Writing, Dorling Kindersley, New Delhi

Parthasarathy, Rangaswami (2006), Basic Journalism, Macmillan India Ltd., New Delhi

Singh, Chandrakant P. (1999), Before the Headlines, Macmillan India Limited, New Delhi

Sissons, Helen (2006), Practical Journalism : How to Write News, Sage Publications, UK

Singh, Bhanu Pratap (2011), Art of Editing, Anmol Publications Pvt Ltd, New Delhi

Wrinn, Mary J.J. (2008), Elements of Journalism, Cosmo Publications, New Delhi

Detailed Syllabi of Skill Enhancement Courses (SECs)

SEC 101 Office Management

Course Objectives

The objectives of the Course are to help the learner's in

- Understanding the concepts of office management and office administration
- Understanding of Office Automation, space management, workplace environment
- Acquiring the knowledge of official terms used in workplace
- Understanding the key concepts of office communication
- Understanding the significance of mailing section, Arrangements with post offices, inward Mail routine and Dealing with correspondence
- Informing with various types of stationeries, drafts, noting, equipment and knowledge in the use of appliances

Course Outcomes

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

- Familiar with office management and office administration
- Acquire skills needed by an administrative assistant to function in such office environment.
- Use human relations skills, interpersonal interactions, as well as verbal and written communications.
- Develop skills in arrangement of papers for filing, methods of filing and indexing

Syllabus

UNIT 1: INTRODUCTION TO OFFICE MANAGEMENT

Meaning and importance of office, Nature and functions of Office, Relationship of office with other departments, Functions-basic and auxiliary, Position and role of an office manager

UNIT 2: OFFICE ADMINISTRATION

Administrative office management, objectives of administrative office management, functions of administrative office manager, scientific office management

UNIT 3: OFFICE LAYOUT

Office Layout and Working Condition, Location of office, Office building, Office layout-nature, principles, types, Open and private offices,

UNIT 4: OFFICE ENVIRONMENT

Lighting, ventilation, safety from physical hazards, sanitary requirements, cleanliness, security and Temperature and interior decoration

UNIT 5: OFFICE SERVICES

Centralization versus decentralization of office services, departmention of office, departments of a modern office

UNIT 6: WORKFLOW IN OFFICE

Workflow in Office, Concept of work-flow and flow charts, Difficulties in work flow.

UNIT 7: OFFICE ORGANIZATION

Office Organization Principles, Types - line, line and staff and services Organization, Office charts and manuals.

UNIT 8: OFFICE COMMUNICATION
Basic Principles, Internal Communication and External communication, Handling Inward and Outward communication; Mail Organization of the mailing section, Arrangements with post offices, Inward Mail routine, Dealing with correspondence, Outward mail routine, Mechanizing mail service.

UNIT 9: FILING AND INDEXING
Concept and Meaning of Filing, Objectives and Importance of Filing, Classification and Arrangement of Papers for Filing, Methods of Filing, Centralized and Decentralized Filing System, Indexing

UNIT 10: OFFICE STATIONARY
Concept and meaning of office stationery, Types of office stationery, Control of office stationary and supplies, Standardization of Office supplies, Purchasing Office Stationeries and Supplies, storage and Office Manager and Stationary control

UNIT 11: OFFICE AUTOMATION
Uses and abuses of Labour saving appliances and various types of commonly used appliances

Reading List

Balachandran, V. and Chandrasekaran, V. (2009), Office Management, Tata McGraw Hill Education Private Limited
Balachandran (2009); Office Management; Tata McGraw-Hill Education, India
Bhatia, Dr. R. C. (2005); Principles of Office Management; Lotus Press; India
Bhatnagar, S. K. (2011); Office Management; Frank Brothers; India
Chakravarti, B. K. (2006); Concept of Front Office Management, APH Publishing; India
Chopra, R. K. and Chopra, Ankita (2009), Office Management, Published by Himalaya Publishing House
Dix, Colin and Baird, Chris (2006); Front Office Operations, Pearson Education India
Dubey, N. B. (2009); Office Management: Developing Skills for Smooth Functioning, Global India Publications; India.
S.S. Khanka (2007), 'Human Resource Management: Text and Cases', 1st Edition, S. Chand and Company Ltd, New Delhi

SEC 102 Organic Farming

Course Objectives

The main objectives of the course are to:

- create awareness about organic production system
- familiarize with organic crop management practices, organic standards and certification
- promote self-employment and income generation

Course outcomes

- Develop critical understanding of various aspect of organic production
- Apply their knowledge and skills by establishing their own organic farm
- Comprehend the importance of eco-friendly fertilizers and pesticides

Syllabus

UNIT 1: PRINCIPLES OF ORGANIC FARMING

The Science of Modem Farming, Development of Organic Farming: Definitions of Organic Farming Concept of Organic Farming: Organic Concept, Holistic Concept, Living Soil Concept, Healthy Plant Concept; Principles of Organic Farming: The Principle of Health, The Principle of Ecology, The Principle of Fairness, The Principle of Care; Role of International Organisations

UNIT 2: ORGANIC NORMS

Certification and Inspection in Organic Farming, National Norms: Certified organic farmer, Basic requirements in an organic farm, Certification, group certification, Organic Certification agencies in North East India, International norms: International Organic Standards: The IFOA and Its Norms: IFOAM Basic Standards (IBS) and IFOAM Accreditation Criteria, The European Union (EU)Council's Regulation on Organic Production; Japanese Organic Standards; United States of America Organic Standards; Comparison of EU, JAS and USDA Organic Standards; Private Certification in Some Countries

UNIT 3: FARM SOIL MANAGEMENT

Farm Design, Components of an Organic Farm, Planning and Layout of the Farm; Farm Components in Different Agro Eco-Systems; Field Crops in Organic Farms, Trees in Organic Farms: Border Trees, Agro forestry, Farm Forestry, Benefits of Trees in organic Farm; Farm Biodiversity, Field Bunds; Farm Structures: Cattle Shed, Storehouse, Farm Office; Land Preparation: Implements Used for Land Preparation, Factors Influencing Land Preparation, Summer Ploughing, Wetland Preparation; Types of Tillage: Conventional Tillage, Minimum Tillage, Zero Tillage, Conservation Tillage; Organic mulching, green cropping, cover cropping, biochar and its application, Buffer Zone

UNIT 4: SEEDS, PLANTING AND FARM IMPLEMENTS

Seeds: Structure and germination, Seed dormancy: causes and method of breaking dormancy, Seeds sowing/ Planting of some important crops, Different Farm implements: Ploughing, sowing, inter-cultivation and other

UNIT 5: WATER MANAGEMENT AND CONTAMINATION CONTROL

Quality and standard of irrigation water, Schedule of irrigation, Preparation of land for irrigation, Methods of irrigation, Critical Stages in Crop Development: Cereals and Millets, Legumes and Oil Seed, Vegetables and Fruit Crop, Contamination: Soil, water and air, Control of contamination: National Guidelines, Protecting Farm Ponds and Wells, Decontaminating Farm Wells, Contamination Control for Pesticide Spill, Human Relation

UNIT 6: CROP ROTATION AND CROPPING SYSTEM

Principles of Crop Rotation, Effect of crop rotation; Selection of crops for rotation Advantages and disadvantages of Crop Rotation, relay cropping

UNIT 7: COMPOSTING AND MANURING

Organic Resources Available for Manuring and Composting; Compost and Composting; Stages of Composting: Mesophilic Stage, Thermophilic Stage, Curing; Principles of Composting Types of Composting: Aerobic Decomposition, Anaerobic Decomposition, Methods of Composting, Vermicomposting; Factors Affecting Composting: C/N Ratio of the Bedding Materials, Blending and Shredding, Moisture, Temperature, Oxygen or Aeration, pH

UNIT 8: BIO FERTILIZERS, BIO PESTICIDES AND BIOCONTROL AGENTS

Types of bio fertilizers, biopesticides; Methods of Bio fertilizer application: Seed, root ad Soil; Biocontrol agents: Uses and application

UNIT 9: MARKETING OF ORGANIC PRODUCE

Markets - Concepts and Classification: Definition of Market, Classification of Markets, Channel of Distribution and Role of Middlemen, Understanding the Marketing Process, Marketing of Agricultural Products ; Marketing of Organic Produce: Current Status of World Organic Market, Organic Market in India Limitation of Organic Market in India

UNIT 10: GOVERNMENT SCHEMES AND OTHER FINANCIAL RESOURCES

National Programme for Organic Production; Schemes of Ministry of Agriculture (MoA) Govt. of India; Scheme on Organic Farming under National Horticulture Mission; Supports for Organic Farming under Technology Mission for Integrated Development of Horticulture in the North Eastern States; Scheme on Capacity Building for Organic Products; Other Financial Resources

Practical

Unit 1: Visit to organic farm and bio fertilizer production unit
Unit 2: Seed Treatment of important crops
Unit 3: Sowing and Planting of important crops
Unit 4: Preparation and application of Compost
Unit 5: Preparation of Plant protection inputs like organic pesticides, neem cake.
Unit 6: Preparation of vermicompost and Vermiwash

SEC 103 Introduction to Geo-informatics [Credits: 2 Theory+1 Practical]

Course Objectives

- To provide the basic concepts and significance of Geoinformatics
- To give an idea to understand maps used in Geographic Information System (GIS)
- To familiarize with the GIS and its applications
- To get an idea of various GIS data types
- To describe the applications of geoinformatics in different areas

Course Outcomes

At the end of the course, a learner will be able to

- Understand the relationship between people, climate, landforms, river system, vegetation and much more
- Develop the computer and management skills as a part of geospatial technology using GIS tools

UNIT 1: UNDERSTANDING MAPS

Definition of a map; Properties of maps; Types of maps; Present day significance of maps; Map Projection Systems; Map Projections for Hemispheres and the World; Map Projections for Continents and Regions; Concept of Datum; Universal Transverse Mercator projection; International Terrestrial Reference Frame in GIS

UNIT 2: INTRODUCTION TO GIS

Basic Concepts of Geographic Information System; Components of a GIS; Spatial Data Creation; Data Types: Spatial Data, Non-Spatial Data, Raster Data, Vector Data, TIN; Data Editing and Analysis; Topological Relationships; Advantages of GIS; Social and Institutional Context of GIS; Contemporary Development of GIS; Web GIS

UNIT 3: INTRODUCTION TO GNSS

Introduction to GPS; GPS Applications: Asset Mapping, Navigation Services, Location Based Services; Introduction and Surveying

UNIT 4: BASICS OF REMOTE SENSING

Introduction to Remote Sensing; Types of Remote Sensing; Indian Remote Sensing Programmes

UNIT 5: OPEN DATA SOURCES AND SOFTWARE FOR GEOINFORMATICS

Open-Source Data: Bhuvan, USGS, Google Earth, Gram Manchitra; Open source Digital Elevation Model; Open Source Software: QGIS.

UNIT 6: APPLICATIONS OF GEOINFORMATICS

Application of Geoinformatics in Natural Resource Management, Watershed Management, Disaster Management, Rural Development, Urban Planning, Monitoring and Evaluation of Projects.

Reading List

George Joseph, (2005), Fundamentals of Remote Sensing (2nd ed.), University Press, pp.1-474
DeMers M. N., 2000: Fundamentals of Geographic Information Systems, John Wiley & Sons
Lillesand, T.M., Kiefer, W.R. and Chipman, W.J, (2004), Remote Sensing and Image Interpretation, (5th ed.), Wiley India Publication, pp.1-763
Clarke K. C., 2001: Getting Started with Geographic Information Systems, Prentice Hall
French, G. T. 1996: Understanding the GPS: An Introduction to the Global Positioning System, Geo Research Inc.
Burrough. P.A. & McDonnell. R. (1998), Principles of Geographic Information Systems, OUP

SEC 201 Tea Cultivation and Management

Course Objectives

- impart both theoretical and practical knowledge in the functional areas of tea plantation and management
- encourage the small tea cultivation among the unemployed youth
- help those who have already engaged themselves in Tea Plantation sector

Course outcomes

After completing the course a learner will be able to

- apply their knowledge and skills by establishing their own tea plantation
- get employability in various sectors like tea gardens, Tea Processing Units, Tea brokering houses, Tea Research Institute
- Integrate knowledge of tea cultivation and management in a scientific way

Syllabus

UNIT 1: INTRODUCTION TO TEA AND ITS CULTIVATION

Beginning of tea cultivation in India, the tea plant and its cultivation, tea growing areas in India, small scale tea cultivation in Assam, tea cultivation in non traditional areas and other N.E. states, tea industry and its role in national economy, developmental agencies

UNIT 2: SOIL AND CLIMATIC REQUIREMENTS

Soil requirements-physical, chemical and biological properties, land features slope, altitude and aspects, climatic requirements- rainfall, temperature, R.H., day length and wind velocity, selection of sites for tea, soil and water conservation.

UNIT 3: PLANTING MATERIALS OF TEA AND PROPAGATION

Planting materials-clone, clonal seed, differences between clone and clonal seeds, choice of planting materials, production of planting materials-clonal nucleus plot, tea seed barie; Seed propagation, vegetative propagation, tea nursery, nursery techniques for V.P. nursery techniques for seed propagation, nursery management

UNIT 4: LAND PREPARATION AND PLANTING

Land preparation-land preparation in virgin, uprooted and marginal lands; Planting-age and size of plant, stacking, spacing, pit digging, planting time, after care, infilling, planting in undulating hilly areas-catchment planning

UNIT 5: YOUNG TEA MANAGEMENT

Objectives of training, frame formation-operations, methods of bringing up for plain areas of N.E. India and hilly areas, cultural practices adopted in young tea management

UNIT6: PRUNING OF TEA

Pruning - Objectives of pruning, skiffing, different types of pruning and skiffing, method of pruning, pruning cycle

UNIT7: PLUCKING OF TEA

Objectives of Plucking, plucking-tipping, maintenance foliage, plucking systems, standard of plucking, plucking round, creep, breaking back, banjhi shoot, plucking baskets/ bag care and handling of green leaf

UNIT 8: PLANT PROTECTION

Weeds in Tea plantation, weeds control methods-manual or mechanical, chemical control, Weed Control in Nursery, young tea areas and immature tea; Tea pests- leaf and shoot pests, stem and branch pests, other pests. Sprayers, and application of pesticides, - sprayers, target sites for

application, integrated pest management; tea diseases-casual agencies and classification, common tea diseases, description of common tea diseases and their management, seedling diseases, primary and secondary diseases

UNIT9: PHYSIOLOGICAL DISORDERS AND COLD WEATHER OPERATIONS
Adverse climatic and soil conditions, external agencies, cold weather management

UNIT10: COST DEVELOPMENT OF TEA PLANTATION AND RECORD KEEPING IN TEA GARDEN
Cost development of Tea Plantation – requirement of labour, cost of labour and inputs, income, Record keeping-definition, good record keeping systems, branches of record keeping, books and accounts, information to be maintained in tea garden

Practical
Unit 1: Land Preparation for Planting of Tea
Unit 2: Planting of Tea
Unit 3: Methods of Frame Formation in Tea
Unit 4: Fertilizer Application in Young and Mature Tea.
Unit 5: Pruning and Skiffing of Mature tea
Unit 6: Tipping and Plucking of Tea

Reading list

C.R., Harler. (2022) "teaproduction". Encyclopedia Britannica.

https://www.britannica.com/plant/tea-plant. Accessed 20 July 2022.

Panda,H. (2016). The Complete book on Cultivation and Manufacture of Tea. Asia Pacific Business Press Inc

Barua, D.N. (2008). Science and Practice in Tea Culture. Tea Research Association, Kolkata.

Ghosh Haira,N. (2001). Tea Cultivation-Comprehensive Treatise, International Book Distributing Co., Lucknow

Willinson, K.C. and Clifford, M.N. (1992). 'Tea' Cultivation to Consumption, Springer Dordrecht

The Tea Plant. http://teaworld.kkhsou.in/lessons_details.php?lesson=The-Tea-Plant&urltitlepage=4c59b38ba721a5ad8713

Climate and Soil for Tea Cultivation.http://teaworld.kkhsou.in/lessons_details.php?lesson=Climate-and-Soil-for-Tea-Cultivation&urltitlepage=387bc6c0428d2cd31be8

Propagation of Tea and Nursery Management http://teaworld.kkhsou.in/lessons_details.php?lesson=Propagation-of-Tea-and-

SEC 202 Electricity and Electrical Wiring [2 Theory+1 Practical]

Course Objectives

- To provide the basic concepts of various forms of energy and their sources
- To familiarize with the basic principle of electrical current flow, different terms, their relations and different laws, measurement of current, voltage, power and energy
- To give an idea about magnet, magnetic materials, properties and electromagnetic induction
- To learn wires, cable, house wiring, materials required for house wiring and earthing
- To familiarize with diode, transistor, devices using diode and transistor
- To learn about electrical safety precaution and shock treatment
- To understand the Indian Electricity Rule

Course Outcomes

- After the completion of this course, the learner will be able to-
- describe the fundamental concept of electricity
- define various terms and applications of laws of electric circuits
- select appropriate tools and measuring instruments to carry out electrical works
- identify house wiring components according to their size and specification
- explain the earthing, necessity of earthing and how earthing is done
- perform the tests on newly installed house wiring
- explain about the functioning of semiconductor and devices using semiconductor
- follow the safety precautions, electrical shock treatment and Indian Electricity Rule

Syllabus

UNIT 1: FUNDAMENTALS OF ELECTRICITY

Forms of Energy: Types, their units, advantages of Electrical Energy; Sources of Electricity: conventional and non conventional; Atomic structure; Static and dynamic electricity; Basic terms used in electricity and their definitions: electric potential, potential difference, electrical power, energy and problems; Ohm's Law; Resistance and Specific Resistance: Definition, Effect of temperature on resistance; Conductor and Insulator: Types, properties and applications.

UNIT 2: FUNDAMENTALS OF ELECTRICAL CIRCUIT

Familiarization of common components: Interconnection of passive components; Resistance in series and parallel; Advantages and disadvantages of series and parallel circuit; Voltage and current divider rule; Kirchhoff's Laws.

UNIT 3: INTRODUCTION TO MAGNETISM

Magnet and types of magnet; Permeability and type of magnetic materials on the basis of permeability; Magnetic property of materials; Magnetic effect of electric current; Electromagnetic induction and Faraday's Laws of Electromagnetic Induction; Familiarization with some common devices

UNIT 4: FUNDAMENTALS OF ALTERNATING CURRENT

Direct current (DC) and alternating current (AC): comparison between AC and DC; Electro Motive Force equation: Cycle frequency, time period, amplitude, phase, rms value, average value; Ac Circuit: Inductance, Inductive reactance, capacitance, capacitive reactance, impedance; Power factor and power

UNIT 5: ELECTRICAL MEASUREMENT INSTRUMENT

Multimeter: Analog Multi-meter, Digital Multi-meter; Tong Tester; Measuring Instrument: Permanent Magnet Moving Coil, Moving Iron, Induction type instrument; Measurement Meters: Watt-meter, Energy-meter, Power factor meter; Voltmeter and Ammeter: Extension of range of voltmeter, loading effect of voltmeter, calibration of voltmeter, Extension of range of ammeter, voltage drop effect of

ammeter, calibration of ammeter; Current Transformer and Potential Transformer; Earth resistance meter.

UNIT 6: WIRES AND ACCESSORIES
Types of wires and cables: Characteristics, Current carrying capacity; Types of joints and termination; Safety consideration and regulations

UNIT 7: ELECTRICAL HOUSE WIRING
Method of house wiring; Types of surface wiring and concealed wiring; Wiring accessories and their specifications; Wiring diagram; Types of connections of lamps including staircase connection; Testing of house wiring.

UNIT 8: EARTHING
Importance of earthing; Ground connection and size of GI wire for ground connection; Various types of earthing; Measurement of earth resistance

UNIT 9: SAFETY REQUIREMENT
Hazards of electricity: Fire hazard and electric shock; Safety precautions and electrical safety sign; Shock treatment; Firefighting equipment for fire involving electrical equipment; Indian Electricity Rules and Indian Electricity Act

UNIT 10: SEMICONDUCTOR DEVICES
Semiconductor: Type of semiconductor, Examples; PN junction diode: formation of PN junction diode, forward bias and reverse bias characteristics, application; zener diode; Transistor: Type of transistor, configuration, Working of transistor, operation mode; Field effect transistor; power transistor; LDR.

UNIT 11: INTRODUCTION TO ELECTRICIAN TRADE
Electrician trade: Scope of electrician trade, Employment opportunity; Responsibilities of electrician and wiremen; Training of electrician.

Reading List

Kothari D. P. and I. J. Nagrath, Basic Electrical Engineering, 3rd edn, McGraw Hill Education (India) Private Limited, New Delhi.

Gupta J. B., Electrical and Electronics Engineering Materials, 3rd edn, S. K. Kataria & Sons, New Delhi.

Meheta V. K., Rohit Meheta, Basic Electrical Engineering, 5th edn, S. Chand & company Ltd, New Delhi.

Meheta V. K., Rohit Meheta, Principle of Electrical Engineering, 2nd edn, S. Chand & company Ltd, New Delhi.

Thereja B. L., A. K. Thereja, A Text Book of Electrical Technology Volume- I, 23rd edn, S. Chand & company Ltd, New Delhi.

Mittle V. N., Basic Electrical Engineering, Tata McGraw-Hill Publishing Company Limited, New Delhi.

Anwani M. L., Basic Practicals in Electrical Engineering, Dhanpat rai &Co, New Delhi

Singh Tarlok., Fundamentals of Electrical Engineering, S. K. Kataria & Sons, New Delhi.

Dr Das Basudev, D. Haloi, Dr Mitali Chakravorty, Yasmin Zaman, Basics of Electrical Engineering, Book Land Publication, Guwahati.

SEC 301 Cyber Security

Course Objectives

- Learn the foundations of Cyber security and threat landscape
- To equip students with the technical knowledge and skills needed to protect and defend
- against cyber threats
- To develop skills in students that can help them plan, implement, and monitor cyber
- security mechanisms to ensure the protection of information technology assets
- To expose students to governance, regulatory, legal, economic, environmental, social and
- ethical contexts of cyber security
- To expose students to responsible use of online social media networks
- To systematically educate the necessity to understand the impact of cyber crimes and
- threats with solutions in a global and societal context
- To select suitable ethical principles and commit to professional responsibilities and
- human values and contribute value and wealth for the benefit of the society

Course Outcomes

- On completion of this course, the learners will be able to
- Understand the cyber security threat landscape
- Develop a deeper understanding and familiarity with various types of cyber attacks,
- cyber crimes, vulnerabilities and remedies thereto
- Analyse and evaluate existing legal framework and laws on cyber security
- Analyse and evaluate the digital payment system security and remedial measures against
- digital payment frauds
- Analyse and evaluate the importance of personal data its privacy and security.
- Analyse and evaluate the security aspects of social media platforms and ethical aspects
- associated with use of social media.
- Analyse and evaluate the cyber security risks.
- Based on the Risk assessment, plan suitable security controls , audit and compliance.
- Evaluate and communicate the human role in security systems with an emphasis o n
- ethics, social engineering vulnerabilities and training.
- Increase awareness about cyber-attack vectors and safety against cyber-frauds.
- Take measures for self-cyber-protection as well as societal cyber-protection.

Syllabus

UNIT 1: INTRODUCTION TO CYBER SPACE
Defining Cyberspace and Overview of Computer and Web-technology, Architecture of cyberspace, Communication and web technology

UNIT 2: INTRODUCTION TO INTERNET AND CYBER SECURITY
Internet, World wide web, Advent of internet, Internet infrastructure for data transfer and governance, Internet society, Regulation of cyberspace, Concept of cyber security, Issues and challenges of cyber security

UNIT 3: CYBER CRIME 1
Classification of cyber-crimes, Common cyber crimes- cyber crime targeting computers and mobiles, cyber crime against women and children

UNIT 4: CYBER CRIME 2
Financial frauds, Social engineering attacks, malware and ransomware attacks, zero day and zero click attacks

UNIT 5: CYBER LAW
Cybercriminals modus-operandi , Reporting of cyber crimes, Remedial and mitigation measures, Legal perspective of cyber crime, IT Act 2000 and its amendments, Cyber crime and offences, Organisations dealing with Cyber crime and Cyber security in India, Case studies

UNIT 6: INTRODUCTION TO SOCIAL MEDIA
Introduction to Social networks, Types of Social media, Social media platforms

UNIT 7: HANDLING SOCIAL MEDIA
Social media monitoring, Hashtag, Viral content, Social media marketing, Social media privacy, Challenges, opportunities and pitfalls in online social networks.

UNIT 8: SECURITY ISSUES IN SOCIAL MEDIA
Security issues related to social media, Flagging and reporting of inappropriate content, Laws regarding posting of inappropriate content, Best practices for the use of Social media, Case studies.

UNIT 9: INTRODUCTION TO E-COMMERCE
Definition of E- Commerce, Main components of E-Commerce, Elements of E-Commerce security, E-Commerce threats, E-Commerce security best practices

UNIT 10: INTRODUCTION TO DIGITAL PAYMENTS
Introduction to digital payments, Components of digital payment and stake holders, Modes of digital payments- Banking Cards, Unified Payment Interface (UPI), e-Wallets, Unstructured Supplementary Service Data (USSD), Aadhaar enabled payments

UNIT 11: SECURITY ASPECTS IN DIGITAL PAYMENTS
Digital payments related common frauds and preventive measures; RBI guidelines on digital payments and customer protection in unauthorised banking transactions; Relevant provisions of Payment Settlement Act, 2007

UNIT 12: DIGITAL DEVICES SECURITY 1
End Point device and Mobile phone security, Password policy, Security patch management, Data backup, Downloading and management of third party software.

UNIT 13: DIGITAL DEVICES SECURITY 2
Device security policy, Cyber Security best practices, Significance of host firewall and Anti-virus, Management of host firewall and Antivirus

UNIT 14: WI-FI SECURITY
Introduction to Wi-Fi, Types of Wireless security: Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), Wi-Fi Protected Access 2 (WPA 2), Wi-Fi Protected Access 3 (WPA 3); Threats and risks to Wi-Fi Security, Ways to protect Wi-Fi network, Types of Wi-Fi network security devices, Configuration of basic security policy and permissions

Reading List

Cyber Crime Impact in the New Millennium, by R. C Mishra ,Auther Press. Edition 2010.
Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011)
Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson , 13th November, 2001)
Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd.
Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers.
Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.
Fundamentals of Network Security by E. Maiwald, McGraw Hill.

Detailed Syllabi of Value Added Courses (VACs)

VAC 101 Environmental Studies and Disaster Management

Course Objectives

- Help the undergraduate students to obtain in-depth knowledge on natural processes and resources that sustain life and govern economy.
- Understand the consequences of human activities on the environment, global economy, and quality of human life.
- Develop critical thinking for shaping strategies (scientific, social, economic, administrative, and legal) for environmental protection, conservation of biodiversity, environmental equity, and sustainable development.

Course Outcomes

- Interpret the impacts of human activities on the environment.
- Comprehend the importance of natural resources and its conservation
- Recognize the disasters and Hazards and enable the new generation to face the new challenges.
- Encourage engaging in hazard and disaster related learning in order to develop measures for mitigation.

Syllabus

UNIT 1: CONCEPT OF ENVIRONMENTAL STUDIES

Definition of Environmental Studies and its Scope Environmental Studies and its Multi-Disciplinary, Nature; Rules and Regulations of Environmental Studies and Public Awareness

UNIT 2: NATURAL RESOURCES

Natural Resources; Types of Natural Resources; Forest Resources; Water Resources; Mineral Resources; Food Resources; Energy Resources; Land Resources; Conservation of Natural Resources; Sustainable Development

UNIT 3: ECOSYSTEM

Ecosystem; Food Chain; Food Web; Energy Flow; Ecological Pyramid; Main Ecosystems

UNIT 4: BIODIVERSITY AND ITS CONSERVATION

Definition of Biodiversity; Values of Biodiversity; Biodiversity at Global, National and Local Levels; Hotspots of Biodiversity; Endangered and Endemic Species; Threats to Biodiversity Conservation of Biodiversity

UNIT 5: ENVIRONMENTAL POLLUTION

Environmental Pollution-Definition; Air Pollution; Water Pollution; Soil Pollution; Noise Pollution; Thermal Pollution; Role of Individual in Prevention of Pollution

UNIT 6: CONCEPT OF DISASTER

Defining Disasters; Types of Disasters; Difference Between Hazard: Disaster, Risk and Vulnerability; Causes, Effects and Mitigation Measures of Some Natural Disasters; Man-made Disasters

UNIT 7: DISASTER MANAGEMENT

Disaster Management; Safety Measures Immediately before a Disaster; Emergency Aid; Methods or Steps Taken for Disaster Management; NGO and Participation of Civil Society; Regional Disaster Management and Planning

Activities:

- Visit to an area to document environmental assets; river/forest/flora/fauna, etc.
- Visit to a local polluted site – Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river

Reading List

Carson, R. 2002. Silent Spring. Houghton Mifflin Harcourt.

Gadgil, M., &Guha, R.1993. This Fissured Land: An Ecological History of India. Univ. of California Press.

Gleeson,B.and Low, N. (eds.) 1999. Global Ethics and Environment, London, Routledge.

Gleick, P.H. 1993. Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.

Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll. Principles of Conservation Biology. Sunderland: Sinauer Associates, 2006.

Grumbine, R.Edward, andPandit, M.K. 2013. Threats from India's Himalaya dams. Science, 339: 36-37.

McCully, P.1996. Rivers no more: the environmental effects of dams (pp. 29-64).Zed Books.

McNeil, John R. 2000. Something New Under the Sun: An Environmental

VAC 201 Introduction to Yoga

Course Objectives
One Course on Foundation of Yoga of four credit aims to promote positive health, prevention of stress related health problems and rehabilitation in a proper way. It aims to approach cure common ailments and imparting skills in them to introduce Yoga for health is for general public.

Course Outcomes
This Yoga course is designed for total personality development of students in Colleges and Universities. It will invoke scientific attitude and team spirit to channelize their energies in to creative and constructive endeavours. The syllabus of this course will fulfil these objectives containing one theory paper of hundred marks.

Syllabus

UNIT 1: INTRODUCTION TO YOGA
Definition, principles, goals and benefits of yoga

UNIT 2: A NOTE ON PATANJAL YOGA SUTRA
Description, classification,

UNIT 3: A NOTE ON GHERANDA SAMHITA
Brief Introduction, Important Asanas

UNIT 4: A NOTE ON HATHA YOGA PRADIPIKA
Brief Introduction, Important Pranayamas

UNIT 5: INTRODUCTION TO AYURVEDA
Meaning, Origin, Benefits

UNIT 6: PRINCIPALS OF AYURVEDA
Aim, objective, Laws of Healing

UNIT 7: SWASTHA VRITTA
Symptoms, Significane, Daily routine for health

UNIT 8: INTRODUCTION TO ALTERNATIVE SYSTEM OF MEDICINES
Definition, Types, Methods, Benefits

UNIT 9: PRINCIPLES OF DIET IN YOGA AND AYURVEDA
Classification of food, rules, Foods to be taken

UNIT 10: INTRODUCTION TO INDIAN PHILOSOPHY
Classification of Schools, Development, Characteristics

UNIT 11: YOGA IN ANCIENT SANSKRIT TEXT
Tradition of Yoga in Ancient Indian Literature

UNIT 12: YOGA PRACTICE FOR NON-COMMUNICABLE DISEASES
The Key Facts of non-communicable diseases

UNIT 13: RELEVANCE OF YOGA THERAPY WITH MODERN MEDICAL SCIENCE
Principles of Yoga therapy, Components, Relevance

UNIT 14 YOGA THERAPY FOR COMMON DISORDERS
Yoga therapy for Various Common disorders

UNIT 15 YOGA THERAPY FOR MENTAL ILLNESS
Yoga therapy for Various Mental disorders

Readings

Mukta Biswas: Samkhya Yoga Epistomology, D K Print world Pvt. Ltd, New Delhi
S RadhaKrishnan: Indian Philosophy, Vol. II, Oxford University Press, New Delhi
S N Dasgupta: Yoga as Philosophy and religion, Motilal Banarashidas, Delhi