

Bhattadev University
First Semester
Skill Enhancement Courses (SECs)

The following Skill Enhancement Courses (SECs) are offered for students admitted under Bhattadev University and studying in the First Semester:

Sl. No.	Department	Course Code	Course Name
1.	Anthropology	ANT1101003SE	Tourism Anthropology
2.	Arabic	ARA1101003SE	Communicative Arabic-I
3.	Bengali	BEN1101003SE	বাংলা ভাষাৰ বিভিন্ন ব্যৱহাৰিক দিক ও সম্ভাবনা
4.	Bodo	BOD1101003SE	Food Habits of the Bodos
5.	Botany	BOT1101003SE	Biofertilizers
7.	Commerce	COM1101003SE	Information Technology in Business
8.	Economics	ECO1101003SE	Basics of Data Collection, Analysis and Presentation
9.	Education	EDN1101003SE	Skill of Public Speaking
10.	English	ENG1101003SE	Creative Writing Skills
11.	Geography	GGY1101003SE	Map Design and Visualization
12.	Hindi	HIN1101003SE	Bigyapan Kala
13.	History	HIS1101003SE	Fundamentals of Tourism and Travel Management
14.	Mathematics	MAT1101003SE	Fundamentals of MS Office
15.	Physical Education and Sports	PHE1101003SE	First Aid and Safety Education
16.	Physics	PHY1101003SE	Basics of Electronic Circuits
17.	Sanskrit	SKT1101003SE	Karmakanda 1
18.	Statistics	STA1101003SE	Computational Statistics Using MS Excel
19.	Zoology	ZOO1101003SE	Ornamental Fish and Fisheries

Students are required to choose **any one** course from the above list of SECs as part of their curriculum.

Antropology

FIRST YEAR

FIRST SEMESTER

Course Code: ANT1101003SE

Course Name: Tourism Anthropology

NCrF Level: 4.5

Course Category: Skill Enhancement Course

Credits: Theory-01, Tutorial-00, Practical-02

Contact Hours: Theory-15, Practical: 60

Marks: End Semester Theory-20, Practical: 30

Theory

Course Objective:

1. To understand the anthropological perspective of tourism in the current context.

Course Outcomes:

1. Acquaint with the socio-cultural background of developing tourism.
2. Acquire the basics of eco-tourism and heritage tourism in the current situation.

Section I:

(5 Lectures)

Definition and concept of Tourism, Development of tourism anthropology.

Section II:

(5 Lectures)

Concept of Cultural Tourism: Heritage Tourism, Religious Tourism, Ecotourism and Rural Tourism.

Section III:

(5 Lectures)

Study of Socio-cultural impact of tourism. Tourism and the commodization of culture or culture degradation.

Practical

Field visit to any Tourism site and preparation of a Field report on: Heritage Tourism/Religious Tourism/Ecotourism/Rural Tourism.

Suggested Readings:

- Chambers E. (2000). Native Tours: The Anthropology of Travel and Tourism. Prospect Heights: Waveland.
- Crick M. (1995). The Anthropologists as Tourist: An Identity in Question. In Lanfant MF, Allcock JB, Bruner EM (eds.) International Tourism: Identity and Change. London: Sage. Pp. 205-223.
- Dann GMS, Nash D and Pearce PL. (1998). Methodology in Tourism research. Annals of Tourism Research. 15: 1-28.
- Gmelch SB (2004). Tourists and Tourism: A Reader. Long Grove: Waveland
- Graburn NHH (1977). Tourism: The Sacred Journey. Hosts and Guests: The Anthropology of Tourism. Valene L. Smith, ed. Philadelphia: University of Pennsylvania Press. Pp .33-47

Arabic

First Semester

NCrF Level:4.5		Pre-requisite: Nil		Semester and Level: 1 st Semester (Level 100)		Mark Distribution		
Course Sl.No.	Type of Course	Course Code	Course Name	L-T-P-C	InternalMarks	Theory end semester	Practical	Total
1	Skill Enhancement Course	ARA1101003SE	Communicative Arabic-I	1-0-2-3	Nil	20	30	50

Course Objectives (COs)

CO1: To familiarize students with the Arabic alphabet, its pronunciation, writing system, and basic orthographic features

CO2: To enhance students' Arabic vocabulary for effective comprehension and communication in everyday contexts

CO3: To develop students' ability to use simple Arabic expressions and sentences confidently in everyday communicative situations

Course Learning Outcomes (CLOs):

CLO1: Understand and use basic Arabic vocabulary and expressions in everyday communication.

CLO2: Develop listening and speaking skills for simple conversations in Arabic.

CLO3: Use Arabic language skills in practical contexts such as classroom communication, shopping, travel, family interaction and daily activities.

CLO4: Demonstrate confidence in using Arabic for interpersonal and situational communication.

Unit No.	Unit name :إِسْمُ الْوَحْدَةِ	Unit Content: مُحتويات الوحدة	No. of Theory Classes	Marks
I	Unit- : A brief introduction to Arabic letters	➤ Alphabet in Arabic (الحروف الهجائية العربية/ الأَبجدية العربية) ➤ Arabic Letters and its Shapes (الحروف الهجائية العربية وأشكالها) ➤ Classification and Recognition of Letters (أقسام الحروف الهجائية ومعرفتها) ➤ Pronunciation of Letters (مَخارجُ الحروف الهجائية العربية)	5	7
II	Unit: Vocabulary Enrichment	➤ Natural Elements: Earth, Moon, Sun, Rivers, Mountains, Plants, Vegetables, Flowers, Fruits etc. العناصر الطبيعية: الأرض، والقمر، والشمس، والأنهار، والجبال، والنباتات، والخضروات، والزهور، والفواكه، وغيرها ➤ Time and Navigation: Seconds, Minutes, Hours, Days, Weeks, Months, Years, Seasons and Directions. الوقت والملاحة: الثواني، والدقائق، والساعات، والأيام، والأسابيع، والأشهر، والسنوات، والفصول، والاتجاهات. ➤ Technological Terminologies: Computer, Internet, Smartphone, AI (Artificial Intelligence), Digital Communication etc. المصطلحات التكنولوجية: الحاسوب، الإنترنت، الهاتف الذكي، الذكاء الاصطناعي (AI)، الاتصال الرقمي، وغيرها	5	7
III	Unit- Everyday Communicative Arabic	➤ Greetings and Introductions (التحيات والتعارف) ➤ Classroom Communication (التواصل الصفّي) ➤ Home and Family Communication (التواصل بين المنزل والأسرة) ➤ Market and Shopping Conversation (محادثة في السوق والتسوق)	5	6

Communicative Arabic–I (Basic Level)

Practical Components:

- Pronunciation and Phonetics (Makharij al-Huruf)
- Self-Introduction in Arabic
- Greetings and Everyday Expressions
- Basic Vocabulary and Picture Identification
- Reading Simple Words and Sentences
- Listening and Repetition Exercises
- Short Oral Conversation

Suggested Distribution of Marks (30 Marks)

- Pronunciation – 5 Marks
- Reading – 5 Marks
- Writing – 5 Marks
- Vocabulary – 5 Marks
- Oral Communication – 10 Marks

Recommended Books:

1. Al-qasimi, Badruz Zaman, *Learn to speak Arabic & English*, Ed. 6th Maktaba Waheediya New Delhi, 2009
2. Mollah, Zohurul Islam, Student's Arabic Word Book (English- Assamese-Arabic), Ed.2nd 2018
3. Hasanuzzaman, *Learn Arabic Through English*, 1st Ed.2010, Islamic Book Service (P) Ltd, New Delhi, Reprint 2014
4. Balbakki Dr. Rohi, *Al-Mawrid Arabic-English Dictionary* ,Ed. 2nd Dar El Ilm Lil Malayin, Lebanon, 2008
5. Balbakki, Dr. Munir, *Al-Mawrid al-Hadith, A Modern (English- Arabic) Dictionary*. Ed. 2nd Dar El Ilm Lil Malayin, Lebanon, 2009
6. Faynan, Rafiul Imad, *The Essential Arabic*, 1st Ed.2012 5th Reprint 2006
7. Abul Hashim, *Arabic Made Easy*, 1st Ed.1992 5th Reprint 2006.

Bengali

SEMESTER-I

SEC

PAPER CODE : BEN1101003SE		
PAPER TITLE : বাংলা ভাষা বিভিন্ন ব্যবহারিক দিক ও সম্ভাবনা		
Credit: 1-0-2-3 Total Marks-50 (End Semester-20, Practical-30)		
পাঠ্য বিষয়ের ঈক্ষিত ফলাফল(Course Outcome)		
শিক্ষার্থীরা বাংলা বানান বিধির প্রাথমিক ধারণা, প্রুফ সংশোধনের সংজ্ঞা, বৈশিষ্ট্য, চিহ্ন, প্রয়োজনীয়তা ও ব্যবহারিক প্রয়োগ সম্পর্কে জ্ঞান অর্জন করবে এবং সঠিক বানান ও প্রুফ সংশোধনের জ্ঞান লাভ করবে। শিক্ষার্থীরা কনটেন্ট রাইটিং, বিজ্ঞাপন নির্মাণ, শিক্ষামূলক ভিডিও নির্মাণ, এবং ব্লগ নির্মাণ কৌশল সম্পর্কে জ্ঞান এবং প্রয়োগ দক্ষতা অর্জন করবে, যা তাদের পেশাগত ক্ষেত্রে সৃজনশীলতা ও কার্যকারিতা বৃদ্ধি করবে।		
Section	Topic	No. of Classes
I	বাংলা বানান বিধি ও প্রুফ সংশোধন— বাংলা বানান বিধির প্রাথমিক সূত্র, প্রুফ সংশোধনের সংজ্ঞা, বৈশিষ্ট্য, চিহ্ন, প্রয়োজনীয়তা ও ব্যবহারিক প্রয়োগ	8
III	আন্তর্জালের বৃত্তিমূলক প্রয়োগ— কনটেন্ট রাইটিং, বিজ্ঞাপন নির্মাণ, শিক্ষামূলক ভিডিও নির্মাণ, ব্লগ নির্মাণ কৌশল	7

পাঠ্য তালিকা:

- ১। অনীশকুমার রায়চৌধুরী— *বিজ্ঞাপনবিদ্যা*, কলকাতা।
- ২। অপরাজিতা বন্দ্যোপাধ্যায়—*প্রুফ সংশোধনের প্রথম পাঠ*, কলকাতা।
- ৩। খালেকুজ্জামান এল্ জী— *ইন্টারনেটে ইনকাম ও প্রাসঙ্গিক তথ্য*, ঢাকা
- ৪। জ্যোতির্ময় সেনগুপ্ত— *পাণ্ডুলিপি থেকে প্রুফ সংশোধন*, কলকাতা।
- ৫। নীরেন্দ্রনাথ চক্রবর্তী ও অন্যান্য (সম্পাদিত) — *আকাদেমি বানান অভিধান*, কলকাতা।
- ৬। মো: আনিসুর রহমান— *কম্পিউটার এবং ইন্টারনেট টিপস*, ঢাকা
- ৭। শৈলেন্দ্র বিশ্বাস (সম্পাদিত) — *সংসদ বাংলা অভিধান*, কলকাতা।
- ৮। সুভাষ ভট্টাচার্য— *লেখক ও সম্পাদকের অভিধান*, কলকাতা।

Bodo

Four-Year Undergraduate Programme (FYUGP)

Semester: First

Skill Enhancement Course (SEC)

Course Name: Food Habits of the Bodos

Paper Code: BOD1101003SE

Marks: 20 (Theory) + 30 (Practical)

Total Credit: 1-0-2-3

Total Marks: 50 (End Semester-20, Practical-30)

Unit No.	Unit Contents	Number of Classes	Marks
1	An Introduction to the Food Processing System: Methods and Types	7	10
2	Traditional Food Habits and Preservation System of the Bodos	4	5
3	Impact of Modernity on Bodo Food Habit	4	5

Course Outcome:

1. Identify and describe the traditional food habits, food items, and culinary practices of the Bodo community.
2. Demonstrate the knowledge and skills required to prepare, preserve, and handle selected traditional Bodo food items using hygienic and environmentally sustainable practices.
3. Analyze the impact of modernization, urbanization, and globalization on the traditional food habits of the Bodo community.

Suggested Readings:

1. Boro Kocharini Somaj Arw Harimu (Chirang Publication Board) by Bhaben Narzi.
2. Boro Subung Adar Arw Gannai Jwmnai (N.L. Publication) by Binoy Kumar Brahma.
3. A Study in Cultural Heritage of the Boros (Published by Bina Library) by Dr. Kameswar Brahma.
4. Harimu Arw Boro Harimu (Published by Nilima Prakashni) by Indira Boro.
5. Boro Harimu by Kameswar Brahma.

Botany

SEMESTER I
Course Code: BOT1101003SE
Course Name: Biofertilizers
(L-2, T-0, P-1, C-3)

THEORY

Course Objectives:

1. To facilitate the students to understand basics of biofertilizers.
2. To explain the role of microorganisms as biofertilizers.
3. To impart training to develop skill both handling, cultivation and propagation of quality microbial inoculants.
4. To make students ready for industry as entrepreneurs.
5. To improve the professional competencies and upgrade the knowledge and develop technical skills of biofertilizer production.

Course Learning Outcomes:

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

1. Describe productions steps and specific requirements for biofertilizers.
2. Produce composting from various resources and study recycling.
3. Make skilled manpower for biofertilizer industry.
4. Perform field experiment to check efficacy of biofertilizers.

Section I:

(L-10)

General account about the microbes used as biofertilizer – *Rhizobium* – isolation, identification, mass multiplication, carrier-based inoculants, Actinorrhizal symbiosis. *Azospirillum*: isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms. *Azotobacter*: classification, characteristics – crop response to *Azotobacter* inoculum, maintenance and mass multiplication.

Section II:

(L-6)

Unit 3: *Cyanobacteria* (blue green algae), *Azolla* and *Anabaena azollae* association, nitrogen fixation, factors affecting growth, blue green algae and *Azolla* in rice cultivation.

Section III:

(L-7)

Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

Section IV:

(L-7)

Organic farming – Green manuring and organic fertilizers, Recycling of biodegradable municipal, agricultural and Industrial wastes – biocompost making methods, types and method of vermicomposting –field Application.

Practical

(30 Hours)

1. Isolation of *Anabaena* from *Azolla* leaf.
2. Study of *Rhizobium* from root nodules of leguminous plants by Gram staining method.
3. Test for pH, NO₂, SO₄, Cl and organic matter of different composts.
4. Observation of mycorrhizae from roots.

5. Isolation of arbuscular mycorrhizal spores from rhizospheric soil.
6. Photographs of biocompost methods.
7. Projects on any topic mentioned in the syllabus, with Rhizobium technology, AMF technology, Organic farming, vermicomposting, biocompost , *Azolla* culture

Note: List of practical may be updated depending on the availability of resources.

Suggested Readings

1. Dubey, R.C. (2005). A Text book of Biotechnology S.Chand & Co, New Delhi.
2. Kumaresan, V. (2005). Biotechnology, Saras Publications, New Delhi.
3. John Jothi Prakash, E. (2004). Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
4. Sathe, T.V. (2004) Vermiculture and Organic Farming. Daya publishers.
5. Subha Rao, N.S. (2000) Soil Microbiology, Oxford & IBH Publishers, New Delhi.
6. Vayas,S.C, Vayas, S. and Modi, H.A. (1998). Bio-fertilizers and organic Farming Akta Prakashan, Nadiad

Commerce

COM1101003SE: Information Technology in Business

Total Lectures: 45

Course Credit: 03

Course Objectives

- 1. To develop foundational computer skills relevant to the needs of commerce students, including basic hardware and software knowledge.*
- 2. To enhance understanding of the role of information technology tools in facilitating and improving business operations and decision-making.*
- 3. To provide practical experience in using common business applications, particularly spreadsheets, for business analysis and reporting.*

Course Outcomes

By the end of the course, students will be able to:

- 1. Explain basic computer concepts, including hardware components, software types, and operating systems.*
- 2. Identify and apply various computer applications used in business operations, such as word processing, presentation, and accounting software.*
- 3. Create and manage spreadsheets for business tasks, including data entry, formula use, chart creation, and basic financial analysis.*

Unit 1: Word Processing

(17 Lectures)

Introduction to word-Processing, Word-processing concepts, Use of Templates, working with word document: Editing text, Find and replace text, Formatting, spell check, Autocorrect, Auto text; Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting,

Header and footer, Tables: Inserting, filling and formatting a table; Inserting Pictures and Video; Mail Merge: including linking with Database; Printing documents - Creating Business Documents using the above facilities

Unit 2: Preparing Presentations

(11 Lectures)

Basics of presentations: Slides, Fonts, Drawing, Editing; Inserting: Tables, Images, texts, Symbols, Media; Design; Transition; Animation; and Slideshow. Creating Business Presentations using above facilities

Unit 3: Spreadsheet and its Business Applications & Creating Business Spreadsheet

(17 Lectures)

Spreadsheet concepts, Managing worksheets; Formatting, Entering data, Editing, and Printing a worksheet; Handling operators in formula, Project involving multiple spreadsheets, Organizing Charts and graphs Generally used Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Time, Lookup and reference, Database, and Text functions

Creating spreadsheet in the area of: Loan and Lease statement; Ratio Analysis; Payroll statements; Capital Budgeting; Depreciation Accounting; Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression

Please note: Evaluation of Assignment marks will be based on case study analysis.

Suggested Readings:

1. Introduction to Information Technology- ITL Education Solutions Ltd., Pearson Education.
2. Information Technology- Dr. Sushila Madan, Taxman
3. Microsoft Office for Windows- S. Sagman, Pearson Education.
4. Introduction to Computers –Peter Norton, McGraw hill
5. Information Technology and Management- Turban, Mclean and Wetherbe, John Wiley & Sons.

Economics

Semester I

SKILL ENHANCEMENT COURSE

ECO1101003SE

Basics of Data Collection, Analysis and Presentation

Programme	: Four-Year Undergraduate Programme
NCrF Level	: 4.5
Course Category	: Skill Enhancement Course (SEC)
Credits (L:T:P)	: 3 (2:0:1)
Credit Hours	: Theory-30 Hours, Practical-30 Hours

Course Description

This course introduces students to the basic concepts and applications of data analysis in economics. It familiarizes learners with different types of economic data and their practical uses in understanding economic and social issues. Students will learn the methods of collecting and working with primary data through entry-level field surveys and survey schedules. The course also develops skills in data entry, classification, presentation, and visualization using tables, graphs, and diagrams. Through the use of spreadsheet and statistical software, students will gain practical experience in organizing, analyzing, and interpreting data and preparing simple analytical reports based on survey findings.

Course Outcomes

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

CO1: Explain the nature, types, and sources of economic data, and distinguish between primary and secondary data used in economic analysis.

CO2: Design simple survey schedules and questionnaires, and collect primary data through field surveys and online data collection tools.

CO3: Organize, classify, tabulate, visualize, and analyze data using spreadsheets and basic statistical software.

CO4: Prepare and present a concise analytical report based on survey data using appropriate tables, graphs, and statistical summaries.

Course Outline

Unit I: Introduction to Data and Economic Applications [15]

Meaning and importance of data in economics; Types of data: Cross-sectional, Time-series, Panel data; Sources of economic data: Primary vs. secondary data; Sources of Secondary Data; Census and sampling (Concepts Only).

Unit II: Working with Primary Data: [15]

Different Methods of Collecting Primary Data. Difference between Schedule and Questionnaire: Use, Merits and Demerits, Prerequisites of an ideal Schedule and Questionnaire. Examples of a Good Schedule: NSSO and CENSUS Schedules. Collection of Data Through online resources like GOOGLE Forms.

Unit III: Presentation and Analysis of Data

[30]

Classification and tabulation of data: Frequency distribution, Bar diagram, Pie chart, Histogram, Ogive, Line graph, Basics of data visualization principles; MS Excel and Google Sheets; Introduction to Statistical Software: SPSS / R / STATA; Data entry and cleaning; Sorting and filtering; Frequency Distribution; Creating Different Graphs using software.

Practical: Students will undertake an entry-level primary data survey as part of the practical component of the course. They will learn to prepare survey schedules/questionnaires, collect and organize primary data, perform data entry using spreadsheet or statistical software, analyze the collected information, and present the findings through tables, graphs, and diagrams. Finally, students will prepare a brief analytical report based on their survey findings. **(The survey should be limited to the institution or locality of the student).**

Suggested Readings

1. S.C. Gupta and V.K. Kapoor, *Fundamentals of Mathematical Statistics*
2. Padmalochan Hazarika, *Essential Statistics for Economics and Business Studies*
3. Paul Newbold, *Statistics for Business and Economics*

Education

Skill Enhancement Courses

EDN1101003SE: Skill of Public Speaking

NCrF Level: 4.5

Programme: Four Year Undergraduate Programme

Course category: Skill Enhancement Course

Credit (L:T:P:C): 1:0:2:3

Course Objectives:

- To develop an understanding about the importance of public speaking in academic and professional life.
- To explain the principles and techniques of effective public speaking.
- To apply verbal and non-verbal communication skills in different speaking situations.
- To analyze the elements of effective communication and public speaking.
- To develop confidence and competence in delivering public presentations.

Course Outcomes:

After successful completion of this course, learners will be able to:

- Understand the importance of public speaking and effective communication in different contexts.
- Know the principles and techniques of effective public speaking.
- Apply verbal and non-verbal communication skills to deliver effective presentations.
- Analyze the communication process and the qualities of an effective public speaker.
- Demonstrate confidence and competence in public speaking through effective presentations.

UNIT 1(Total lectures: 15): Communication and Public Speaking: Hands on training / Practical knowledge on effective communication process and elements of public speaking needed to become a good public speaker.

Recommended books and references

- Hazarika, D. (2021). *Rajahua Kathan Dakhyataaru Byaktittor Bikash*. Ashok Book Stall.
- Manoharan, P. K. (2008). *Education and Personality Development*. APH Publishing Corporation.
- Nikitina, Arina .(2011). *Successful Public Speaking*. Arina Nikitina & bookboon.com

English

SKILL ENHANCEMENT COURSE (SEC)

Semester I

Paper Code: ENG1101003SE

Title of the Paper: Creative Writing Skills

Credits: 3 Credits (Lectures -2, Tutorial – 1)

Course Objectives:

- To familiarise the students with the basic knowledge and skills that constitute a prerequisite in the direction of honing one's skills as a creative writer.
- To make it clear to the students the meaning and principles of creative writing and how the same could be executed through different literary modes of writing such as fiction, poetry, drama etc.
- To enable the students to learn about the differences in writing for various literary and social media.
- To inspire and encourage the students to engage themselves in the process of developing their ideas and imagination to embark on creative writing programme.

Course Learning Outcomes:

- The students would learn to express themselves creatively by using their own ideas and faculty of imagination after a proper appraisal of the forms and techniques of writing they have studied so far.
- The students would learn that creative writing skill is not the preserve of a select few, but could be acquired by anyone after proper acquisition of knowledge in this field.
- The students would acquire a fair idea as regards the constituent elements and principles of different forms and genres of literary writings.
- The students would be well versed in the techniques of creative writing and in expressing their thoughts and ideas in different literary genres and modes of creative writing.
- The students would learn to critically appreciate the creative writing skills as displayed in the writings by other creative writers.

Section I: Creative Writing and Literary Genres (15 Lectures)

- Definition, Meaning and Significance of Creative Writing
- Genres of creative writing – prose, poetry, fiction, non-fiction, drama, essay, memoir, biography, autobiography
- Elements of creative writing – plot, setting, character, dialogue, point of view (modes of narration)
- Poetry – form, techniques and characteristics
- The concept and characteristics of drama
- Short story and novel – concept and characteristics

Section II: The Art and Craft of Writing (15 Lectures)

- Literary figures of speech with examples
- Style and Register
- Grammar and variation in structure of language

Section III: Forms and Purpose of Writing (15 Lectures)

Travelogues, Diaries

- Writing for the Media
- Web Content Writing
- Blog Writing
- Film Reviews

Suggested Readings:

Dev, Anjana Neira et al. *Creative Writing: A Beginner's Manual*, Delhi: Pearson, 2009
M.H. Abrams and Geoffrey Galt Harpham. *A Glossary of Literary Terms*, 11th edition, Cengage India Private Ltd, 2015
Earnshaw, Steven (ed). *The Handbook of Creative Writing*, Edinburgh: EUP, 2007
Hamer, Enid. *The Metres of English Poetry*, Booksway, 2014
Gardner, John. *The Art of Fiction*, New York: Vintage, 1991
Blackstone, Bernard. *Practical English Prosody*, Mumbai: Orient Longman, 1984

SKILL ENHANCEMENT COURSE (SEC)

Semester II

Paper Code: ENG1201003SE

Title of the Paper: Translation Studies and Practice

Credits: 3 Credits (Lecture -2, Tutorial -1)

Course Objectives:

- To make the students aware of the importance and significance of translation as a special pursuit of study.
- To enable the students to learn about the different ways, methods and theories involved in the process of undertaking a fruitful translation activity.
- To enable the students to learn about the fact that the critical faculty of mind is involved in the process of undertaking a translation activity.

Course Learning Outcomes:

- After having read the history of translation in India, especially during its colonial era, the students are sure to realise about the importance of this discipline of study.
- The students would learn to engage themselves in the practice of translation activity that concern them in their real life.
- They would avail the opportunity of being engaged as a translator in their professional life after having undergone the course.

Section I: Introduction

(15 Lectures)

- Introducing Translation: a brief history, significance and challenges of translation in a multilingual and multicultural society like India. Exercises in different types/modes of translation, such as –
 - a. Intralingual/Interlingual/Intersemiotic translation
 - b. Semantic/Literal translation
 - c. Functional/Communicative translation
 - d. Technical/Official translation
 - e. Free translation
 - f. Transcreation
 - g. Audio -Visual translation

Geography

Curriculum Framework for FYUGP in Geography, 2026

Syllabus of Skilled Enhancement Course (SE)

NCrF Level: 4.5

Semester - I

Course Name: Map Design and Visualization

Paper Code: GGY1101003SE

Total Marks: 50

(Theory: 20 and Practical: 30)

Total Credits: 3 (Theory: 01, Practical: 02)

L:T:P :: 1:0:2

Total Hours: 75

(Theory & Tutorial: 15 and Practical: 60)

Course Learning Objectives

The course aims to:

- Introduce students to the fundamental principles and concepts of cartography and map design.
- Develop knowledge of cartographic communication and the visual representation of spatial information.
- Familiarize students with thematic mapping techniques and methods of spatial data visualization.
- Provide an understanding of digital cartography and GIS-based visualization tools.
- Develop the ability to prepare, interpret, and critically evaluate maps for geographical analysis and decision-making.

Course Learning Outcomes

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

- CLO1: Explain the concepts, principles, and elements of map design and cartographic communication.
- CLO2: Apply appropriate cartographic symbols, colours, scales, and design principles in preparing effective maps.
- CLO3: Prepare and interpret thematic maps using different techniques of spatial data representation.
- CLO4: Demonstrate basic knowledge of digital cartography, GIS, and cartographic visualization for geographical applications.
- CLO5: Critically evaluate the accuracy, effectiveness, and ethical use of maps in geographical studies.

Skills to be Learned

After completing this course, students will develop the following practical and professional skills:

1. Map Design Skills: Design clear, accurate, and visually effective maps using cartographic principles.
2. Thematic Mapping Skills: Prepare and interpret thematic maps using appropriate mapping techniques and data classification methods.
3. Spatial Data Visualization Skills: Present geographical information effectively through charts, symbols, colours, and map-based visualizations.

4. Digital Cartography and GIS Skills: Develop basic competency in digital map preparation and GIS-based visualization tools.
5. Map Interpretation and Evaluation Skills: Critically assess maps for accuracy, effectiveness, communication, and ethical use in geographical studies.

Theory (15 hours)

Unit - I: Fundamentals of Map Design and Cartographic Communication (5 Hours)

1. Introduction to Cartography: Meaning, nature and scope, Evolution of map making, Importance of maps in geographical analysis and communication.
2. Elements and Principles of Map Design: Components of a map, Cartographic symbols and colour, Principles of map design, Cartographic generalization and Ethics in cartography.

Unit - II: Thematic Mapping and Spatial Data Visualization (5 Hours)

1. Thematic Mapping: Concept and significance, Types of thematic maps, Techniques of thematic mapping.
2. Spatial Data Visualization: Concept and importance, Sources of spatial data, Data classification methods, Graphic representation, Interpretation and evaluation of maps

Unit - III: Digital Cartography and Cartographic Visualization (5 Hours)

1. Digital Cartography: Introduction and development, Conventional versus digital cartography, Online mapping platforms, Applications in urban planning, environmental management, and disaster studies.
2. Cartographic Visualization: GIS-based visualization, Remote sensing visualization, Emerging trends in digital mapping and visualization.

Practical (60 hours)

(To answer 2 questions, one question carrying 12 marks and another 10 marks)

1. Prepare a neat map layout of a given study area using the base map provided. The map must include - Appropriate title, suitable scale, north arrow (direction), legend/key with cartographic symbols, coordinate grid (if provided), neatline and balanced map layout, appropriate colour scheme for different features. (3 Exercises)
2. Supply a thematic map with design deficiencies (poor colour selection, inappropriate symbols, cluttered layout, missing map elements, etc.) and ask them to fulfill the tasks: Identify at least four cartographic/design errors, suggest suitable improvements based on cartographic principles, redraw the legend and colour scheme for improved communication and readability. (2 Exercises)
3. Prepare a thematic map using any one appropriate technique: Choropleth map, Density map, Proportional symbol map, Graduated symbol map with the statistical data provided for districts/blocks (e.g. population density, literacy rate, rainfall, agricultural productivity, etc.) (3 Exercises)
4. Using the dataset provided, construct any one graphical representation: Bar Diagram, Pie Diagram, Histogram, Population Pyramid, Climograph/Hythergraph. After preparing the diagram:
 - i. Classify the data using a suitable method (Equal Interval, Quartile, Natural Breaks, Standard Deviation).
 - ii. Draw the graphical representation accurately.
 - iii. Interpret the major geographical patterns revealed by the visualization. (2 Exercises)

5. Using the spatial dataset provided (administrative boundaries, roads, rivers, land use, population data), prepare a digital thematic map in GIS software (e.g. QGIS or ArcGIS). The map should include: Appropriate map title, Scale and north arrow, Legend, Layer management and symbolization, Suitable colour scheme and Map layout for printing/export. (3 Exercises)
6. A satellite image of a selected area is provided. Now ask them to
 - i. Identify and delineate major land-use/land-cover features (e.g., water bodies, vegetation, built-up areas, agricultural land).
 - ii. Prepare a simple interpreted map using appropriate symbols and colours.
 - iii. Write a brief interpretation of the spatial patterns and discuss one application of the map in urban planning, environmental management, or disaster studies. (2 Exercises)
7. Examine a printed map and a digital map of the same area and identify differences in scale, layers, interactivity, updating, and visualization techniques.
8. Practical Note Book 5 Marks
9. Viva-Voce 3 Marks

Suggested Readings:

- Elements of Cartography – Arthur H. Robinson, Joel L. Morrison, Phillip C. Muehrcke & A. Jon Kimerling.
A foundational text covering cartographic principles, map design, symbolization, and map communication.
- Thematic Cartography and Geovisualization – Terry A. Slocum, Robert B. McMaster, Fritz C. Kessler & Hugh H. Howard.
Comprehensive treatment of thematic mapping techniques and geovisualization.
- Designing Better Maps: A Guide for GIS Users – Cynthia A. Brewer.
Excellent guide to map design, colour schemes, and cartographic communication.
- Cartography: Visualization of Geospatial Data – Menno-Jan Kraak & Ferjan Ormeling.
Focuses on modern cartography, visualization, and digital mapping.
- GIS Cartography: A Guide to Effective Map Design – Gretchen N. Peterson.
Practical guide to designing effective maps using GIS software.
- How to Lie with Maps – Mark Monmonier.
Introduces map ethics, distortions, and critical map interpretation.
- Geographic Information Systems and Science – Paul A. Longley, Michael F. Goodchild, David J. Maguire & David W. Rhind.
Essential reference for GIS concepts and spatial visualization.
- Introduction to Geographic Information Systems – Kang-tsung Chang.
Widely used introductory text covering GIS, mapping, and spatial analysis.
- Remote Sensing and Image Interpretation – Thomas M. Lillesand, Ralph W. Kiefer & Jonathan W. Chipman.
Useful for remote sensing visualization and image interpretation.
- Web Cartography: Developments and Prospects – Edited by Menno-Jan Kraak & Allan Brown.
Covers web mapping, online cartography, and emerging technologies.

Hindi

चार वर्षीय स्नातक कार्यक्रम पाठ्यक्रम

विषय : हिन्दी

छमाही : प्रथम

कोर्स-कोड : HIN1101003SE

कोर्स का नाम : विज्ञापन कला

(VIGYAPAN KALA)

कुल अंक : 50

उद्देश्य: इस प्रश्न-पत्र का उद्देश्य स्नातक के विद्यार्थियों को विज्ञापन कला से अवगत कराना है | विज्ञापन के विभिन्न माध्यमों के व्यावहारिक एवं तकनीकी पक्षों से उन्हें परिचित कराना है |

उपलब्धि : इस पाठ्यक्रम के अध्ययन के बाद विद्यार्थी विज्ञापन के स्वरूप और संरचना से परिचित होंगे | साथ ही विज्ञापन निर्माण की प्रक्रिया को समझ सकेंगे |

इकाई	क्रेडिट	पाठ्य-विषय	कक्षा-संख्या
1	1	विज्ञापन: परिभाषा, स्वरूप, उद्देश्य, विज्ञापन की उपकारिता, महत्त्व,	15
2	1	विज्ञापन के विविध माध्यमों का सामान्य परिचय : प्रिंट माध्यम, रेडियो माध्यम, टेलीविज़न माध्यम और इन माध्यमों के गुण और सीमाएं विज्ञापन और रोजगार	15
3	1	विज्ञापन की भाषा, भाषा का स्वरूप विज्ञापन लेखन-कॉपी लेखन : विज्ञापन का शीर्षक, उपशीर्षक, मूल कथ्य (बॉडी कॉपी), बेस लाइन, चित्र एवं फ़िल्म, विज्ञापन, सज्जा (रंग, ट्रेडमार्क, लोगो, स्लोगन)	15

संदर्भ ग्रंथ :

1. डॉ. प्रेमचंद पतंजलि- आधुनिक विज्ञापन-वाणी प्रकाशन, नई दिल्ली ।
2. विज्ञापन कला - वाणी प्रकाशन, नई दिल्ली ।
3. विज्ञापन डॉट काम - वाणी प्रकाशन, नई दिल्ली ।
4. विज्ञापन सिद्धान्त और प्रयोग- डॉ विजय कुलश्रेष्ठ, माया प्रकाशन, जयपुर ।
5. विज्ञापन व्यवसाय एवं कला -डॉ रामचन्द्र तिवारी, आलेख प्रकाशन, नई दिल्ली ।
6. विज्ञापन: भाषा और संरचना -डॉ रेखा सेठी, वाणी प्रकाशन, नई दिल्ली ।

SKILL ENHANCEMENT COURSES (SEC)

SEMESTER: I

Course Title: FUNDAMENTALS OF TOURISM AND TRAVEL MANAGEMENT

Course Code: HIS1101003SE

NCrF Level: 4.5

Programme: FYUGP

Course Category: Multidisciplinary Course

Credit (L:T:P): 03 (1:0:2)

Credit Hours: 45 (Theory: 15 Hours, Practical: 30 Hours)

Course Objectives: This course aims to gain the knowledge and skills of the basic conceptual framework of Tourism. This course focuses on different factors of Tourism and Travel including origin, growth and development throughout the ages and has emphasized on tourism motivation, growth and development of National and International Tourism. Inclusion of tourism industry and its significance is another prime objective for this course. Case studies are included to train the students for better understanding of how to do fieldwork or survey of local existing and potential sites or spots and also to train them for how to prepare a field report from the point of view of Tourism and power point presentation of the same.

Course Outcomes: After the completion of the course, students will be equipped with

- Understand the basic concepts, nature, scope and components of tourism and travel management.
- Knowledge of the structure and functions of the tourism industry, including transportation, accommodation, travel agencies and tour operations.
- Identify the socio-economic, cultural and environmental impacts of tourism at local, national and global levels.
- Develop fundamental knowledge and practical understanding of tourism products, tourist behavior and emerging trends in the tourism sector.

Section-I Tourism- General understanding (10 marks, 8 lectures)

- 1.1 Tourism- Definition and meaning, History of Tourism
- 1.2 Tourism and Tourist, Traveller, Visitor, Excursionist
- 1.3 Types of Tourism, Business and Leisure Tourism
- 1.4 Inbound and Outbound Tourism
- 1.5 Community based Tourism

Section-II Basic components of Tourism and Mass Tourism (05 marks, 3 lectures)

- 2.1 Understanding the basic components of Tourism- Accessibility, Accommodation, Attraction
- 2.2 Travel Agency and Tour Operator
- 2.3 Mass Tourism, Characteristics of Mass Tourism, Impact of Mass Tourism.

Section-III Impacts of Tourism (05 marks, 4 lectures)

- 3.1 Impacts of Tourism- Contribution to GDP
- 3.2 Tourism as a foreign exchange earner
- 3.3 Employment generation, Infrastructure development in host region, international understanding
- 3.4 Conservation of Natural and Cultural heritage through Tourism,

Practical: Report writing and presentation on tourism destinations of Assam.
(30 marks)

Suggested Readings:

- Seth, P. N., (2011) Successful Tourism Management, Sterling Publishers, New Delhi.
 Bhatia, A.K., (2014) International Tourism Management, Sterling Publishers, New Delhi.
 Lea, J., (1998) Tourism and Development in the Third World, Methuen, New York.
 Walker, John R. & Walker, Josielyn T, (2011) Tourism: Concepts and Practices, Pearson, New Delhi.
 Fennell, D. A., (1999) Ecotourism, Routledge, London.

Title of the Course: Fundamentals of MS Office.

Course Code: MAT1101003SE.

Category of Course: Skill Enhancement Course.

NCrF Level: 4.5.

Credits: 1 (L)-0 (T)-2 (P)-3 (C).

Pre-requisite: NA.

Distribution of Marks: End Term Examination-40%, Practical-60%.

Course Objectives: The course is designed to provide students with practical knowledge and hands-on experience in the use of MS Office applications for academic, professional, and personal productivity. The objectives of this course are to:

- Introduce students to the fundamental features and applications of MS Office tools.
- Develop proficiency in creating, editing, formatting, and managing documents using MS Word.
- Equip students with the skills required for data entry, computation, analysis, and visualization using MS Excel.
- Train students to design and deliver effective presentations using MS PowerPoint.
- Enable students to integrate Word, Excel, and PowerPoint for preparing reports, analyzing data, and presenting information professionally.

Course Learning Outcomes (CLO): After completion of this course, students will be able to:

CLO1: Create, edit, format, and manage professional documents using MS Word.

CLO2: Apply spreadsheet tools and functions in MS Excel for data organization, computation, and analysis.

CLO3: Design professional presentations using MS PowerPoint by incorporating multimedia elements, animations, and presentation tools.

CLO4: Integrate MS Word, Excel, and PowerPoint to prepare reports, analyze information, and communicate findings effectively.

CLO5: Demonstrate digital competency and workplace productivity skills through practical applications of MS Office tools.

Skills to be Learned from the Course:

- Professional document preparation and formatting.
- Report writing and documentation skills.
- Spreadsheet development and data management.
- Data analysis and visualization using charts and graphs.
- Presentation design and communication skills.

Contents

MS Office and MS Word: Introduction to Office Suite, Creating, opening, saving and managing documents, Text editing, Formatting fonts, paragraphs and pages, Bullets and numbering, Headers, footers and page numbering, Tables and images, Spell check and document review, Printing documents.

Lecture-7, Mark-7.

MS Excel: Workbook and worksheet concepts, Data entry and formatting, Formulas and functions (SUM, AVERAGE, MAX, MIN, COUNT), Relative and absolute references, Sorting and filtering, Conditional formatting, Charts and graphs, Page setup and printing spreadsheets.

Lecture-7, Mark-7.

MS PowerPoint: Creating presentations, Themes and templates, Slide layouts, Inserting text, pictures, tables, charts and SmartArt, Animations and transitions, Hyperlinks and action buttons, Slide show setup and presentation delivery techniques.

Lecture-6, Mark-6.

Practical: Following is a list of the practicals to be done for this course:
Marks-30.

Contact Hours-30,

- (a) Create and format professional documents using MS Word.
- (b) Prepare letters, reports, notices, and resumes using MS Word.
- (c) Create worksheets and perform calculations using Excel functions.
- (d) Sort, filter, and analyze data in MS Excel.
- (e) Create charts and graphs in MS excel.
- (f) Design presentations using PowerPoint themes, animations, and multimedia.
- (g) Prepare a report in Word, analyze data in Excel, and present findings through PowerPoint.

Textbooks

1. J. Lambert and F. Curtis, *Microsoft Office 365 Step by Step*, Microsoft Press, 2019.
2. F. Wempen, *Microsoft Office 365 Bible*, Wiley, 2019.

Reference books

3. G. B. Shelly, M. E. Vermaat, and S. M. Freund, *Microsoft Office Fundamentals*, Cengage Learning, 2016.

Physics

PHY 1101003SE : BASICS OF ELECTRONIC CIRCUITS

NCrF Level:	4.5	
Programme:	Four Year Undergraduate Programme	Semester: First
Course Category:	Skill Enhancement Course (SEC)	
Credits (L – T – P):	2- 0- 1	
Credit Hours	Theory: 30 Hours, Practical: 30 Hours	
Prerequisite:	Class IX & X (NCrF Level 2.0 & 2.5) Science and Mathematics	

1.0 COURSE OBJECTIVES

This course provides a foundational understanding of electronic circuits, focusing on the practical design and troubleshooting of electronic instruments. The main objectives of the Courses are to:

- Provide a comprehensive understanding of the operating principles, characteristics and applications of batteries, solar cells and regulated power supplies.
- Develop the ability to analyze the performance of DC power sources by evaluating their voltage regulation, efficiency, reliability, and operational characteristics under different loading conditions.
- Equip students with the knowledge and skills required to design, construct, test, and troubleshoot simple DC power systems using appropriate electronic components and measuring instruments.
- Familiarize students with standard techniques for testing, maintenance, and performance evaluation of DC power sources, emphasizing efficiency, sustainability, and their applications.

2.0 COURSE LEARNING OUTCOMES

After completing this course, students will be able to,

CLO	Outcomes
CLO1:	Learn to analyse, troubleshoot electronic circuits by applying fundamental laws, electrical quantities, and AC principles, including measurement of AC and DC parameters.
CLO2:	Able to use electronic measuring instruments, interpret measurement data, evaluate the characteristics of electronic components, and analyze electronic circuits for performance assessment and fault diagnosis.
CLO3:	Learn the basics and practical applications of solid-state devices like diodes, transistors and skills to troubleshoot electronic circuits with these components.
CLO4:	Understand the basics of power sources including batteries, solar cells, AC generators, and analyse their performance, efficiency and voltage regulation for electronic applications.
CLO5:	Acquire the ability to operate electronic measuring instruments, analyse measurement data, test components and troubleshoot a wide range of electronic circuits efficiently.

3.0 SKILLS TO BE LEARNED

- Apply fundamental electrical quantities and laws to analyse basic circuits.
- Analyze DC electrical networks using circuits laws to determine current, voltage, and power.
- Evaluate the behaviour of electrical circuits with resistance, inductor and capacitor.
- Analyze AC circuits using concepts of impedance, reactance, power factor, and power.
- Single-phase and three-phase AC systems and apply rules for analysing AC circuits
- Use semiconductor components in circuits like diodes, BJT, SCR, TRIAC, DIAC, thyristors.
- Use of primary and secondary batteries as well as solar cells, inverters, and generators.

- Use measurement and testing instruments to measure electrical signals.
- Design and construct of regulated power supplies and SMPS
- Develop practical competence in assembling, testing, troubleshooting, and evaluating basic electrical and electronic circuits for real-world applications.

4.0 DETAILED CONTENTS OF THE COURSE: THEORY

Credit: 2

Classroom Teaching: 30 Hours

SECTION 1:

Introduction to Electronics: Basic electrical quantities: voltage, current, resistance, and electrical power. Electronics circuits - branch, loop, node, Ohm's Law, conductors, insulators, and semiconductors. Resistors, capacitors, and inductors: symbols, functions, and applications. Series and parallel connections of resistors and basic circuit elements. Introduction to simple RC circuits and their applications. **[6 hours]**

Alternating Current (AC) Fundamentals: Direct Current (DC) and Alternating Current (AC); sources of AC and DC electricity. Household electricity supply and electrical safety. Concept of frequency, voltage, current, and power in AC circuits. Introduction to single-phase and three-phase power systems. Energy conservation and efficient use of electrical energy. **[5 hours]**

Electronic Components and Semiconductor Devices: Classification and identification of resistors, capacitors, and inductors. semiconductors and semiconductor device, Light dependent resistance, diode - structure, principle and applications, Zener diode, LED, Photodiode, Transistor - Identification, testing and applications, IC - analog and digital, Thyristors, DIAC, TRIAC and SCR and their applications. **[5 hours]**

SECTION 2:

Electrical Power Sources: Primary and secondary batteries; common battery types and their applications. Rechargeable batteries and battery safety. Solar cells as renewable energy sources. Electrical generators and inverters. Conversion of solar energy into electrical energy and its practical applications. **[5 hours]**

Measuring and Testing Instruments: Introduction to electrical and electronic measuring instruments. Analog and digital multimeters; measurement of voltage, current, and resistance. o LCR meters, clamp meters, IR thermometers, Oscilloscopes and its use, Basic testing and identification of resistors, capacitors, inductors, diodes, and transistors, FET **[5 hours]**

Power Supply: Block diagram of a regulated power supply. Transformers, rectifier circuits - half-wave, full-wave, and bridge rectifiers. use of filter circuits in power supply, voltage regulation using diode, transistor and IC(78XX and 79XX), variable voltage source. SMPs and its advantages **[6 hours]**

5.0 DETAILED CONTENTS OF THE COURSE: PRACTICUM

Credit: 1

Laboratory Work: 30 Hours

The practicum component of the course is designed to develop hands-on skills in the use of electronic measuring instruments, components, and circuits while emphasizing safe laboratory practices. Students will learn to operate test equipment, construct and analyse basic electronic circuits, interpret measurements, and troubleshoot common faults. Observations, calculations, and results obtained during experiments should be recorded systematically in a laboratory notebook.

During the initial laboratory sessions, students will undertake the laboratory activities listed below to develop familiarity with laboratory equipment, experimental procedures, and safety practices

- 1) Familiarization with laboratory safety rules, equipment handling and operating procedures.
 - a) Identification, classification and rating measurement of electronic components
 - b) Use of breadboard, hook-up wires, and proper wiring techniques for circuit construction
 - c) Design and implementation of basic and intermediate electronic circuits on breadboard
 - d) Measurement of voltage, current, resistance, impedance using multimeter and LCR meter

- e) Use of oscilloscope for waveform observation, frequency measurement and AC signal analysis
- f) Testing and verification of resistors, inductors, capacitors, diodes, transistors and other devices
- g) Fault finding, troubleshooting, and performance evaluation of circuits
- h) Practice of soldering techniques for reliable electronic connections
- i) Soldering and assembly of electronic circuits on printed circuit boards (PCB)

Following the development of fundamental laboratory skills, students will perform a series of advanced experiments designed to deepen their understanding of electronic circuits and instrumentation while enhancing their practical and analytical capabilities. The instructor may incorporate additional experiments, projects, or demonstrations relevant to the course to address emerging technologies, available resources, and specific instructional requirements.

(A) Basic Electronics and Circuit Analysis

- 1) To verify Ohm's law experimentally and determine resistance from observed V-I data.
- 2) To construct and analyze series, parallel, and series-parallel resistive networks and to precisely determine voltage drops, current distribution and equivalent resistance.
- 3) To experimentally verify Kirchhoff's Voltage Law and Kirchhoff's Current Law .
- 4) To verify voltage divider and current divider circuits experimentally.
- 5) To experimentally verify the behavior of capacitors and inductors connected in series and parallel, and to determine their equivalent values and corresponding energy storage characteristics.
- 6) To analyze transient response in RC and LC circuits under DC excitation and study charging, discharging, and oscillatory characteristics.
- 7) To test and verify operational conditions of resistors, capacitors, inductors, diodes, and transistors and build diagnostic capability for practical circuits.
- 8) To observe and analyze AC and DC waveforms using an oscilloscope and measure peak, RMS, and frequency accurately.
- 9) To measure impedance, reactance, phase angle, and power factor in AC circuits and understand the role of reactive elements.

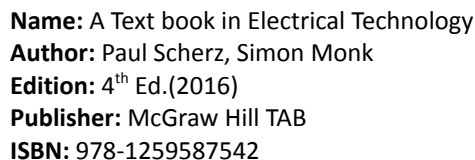
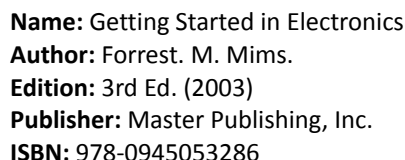
(B) Semiconductor Devices

- 1) To study forward and reverse bias behavior of diodes, plot V-I characteristics, and analyze their application in rectification and limiting.
- 2) To understand the working principle of a transistor, examine its operation as a switch or simple amplifier, and identify operating regions.
- 3) To understand operation and triggering of SCR, DIAC, and TRIAC and interpret their application in control and power regulation.

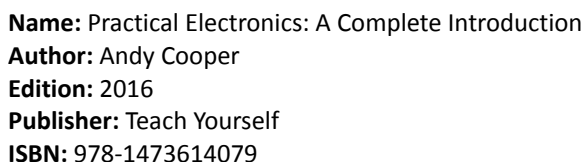
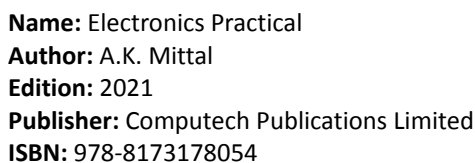
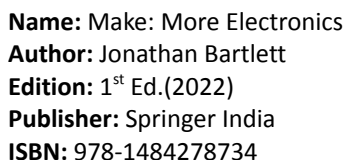
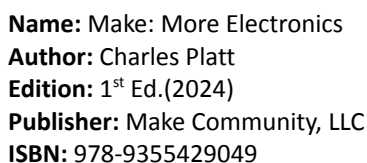
(C) Power Sources:

- 1) To study and compare characteristics of primary and secondary batteries by measuring voltage, internal resistance, and performance suitability.
- 2) To analyze solar cell performance as a DC source by measuring output characteristics and interpret its integration for AC generation.
- 3) To study transformer operation and construct half-wave, full-wave, and bridge rectifier circuits and compare output characteristics and ripple.
- 4) To understand and evaluate the effect of different filter circuits such as capacitor, choke, L-section, and π -section on ripple reduction.
- 5) To design and test voltage regulation circuits using diode-based, transistor-based, and IC regulators and analyze regulation performance.

6.0 TEXT BOOKS



7.0 REFERENCE BOOKS AND MATERIALS



8.0 MAPPING OF CLO TO PLO

The CLO and their mapping with the PLO of B.Sc. in Physics (Hons.) are specified in the table below

[illegible]

8.0 ASSESSMENT SCHEME

Assessment shall be conducted on a continuous basis throughout the semester to evaluate the student's attainment of the course learning outcomes through various academic activities appropriate to the nature of the course. The evaluation shall take into account the student's conceptual understanding, analytical ability, practical skills, academic performance, participation, and overall progress. The distribution of marks for the assessment shall be as follows:

Component	% of Marks		
	Internal Assessment	End Term Examination	Total
Theory			
Practicum			

ASSESSMENT OF PRACTICUM:

The assessment of the practicum shall comprise Continuous Internal Assessment and an End-Term Examination. The Continuous Internal Assessment shall evaluate the student's laboratory performance, practical skills, conceptual understanding, regularity, participation and progress throughout the semester.

In the End-Term Examination, each student shall be assigned four or five laboratory tasks, depending on their weightage, selected randomly from the department-approved list of experiments. The student shall complete the assigned tasks within the stipulated time, submit a laboratory report, and appear for a viva voce examination. The final assessment shall be based on the student's performance in the assigned experiments, the quality of the laboratory report, performance in the viva voce examination and the Laboratory Notebook maintained throughout the semester.

Sanskrit

SKT – 1101003SE : Karmakanda 1 (पूजाविधानस्य आधारतत्त्वानि- सामग्र्य; ,)

NCrF Level : 4.5

Programme :Four –Year Undergraduate Programme

Difficulty Level: 100

Course Category : Skill Enhancement Course

Credits (L-T-P-C): 1-0-2-3

Evaluation Method: Internal 0%, End Semester 20% Practical 30%

Prerequisite: Class XI & XII (NCrF Level 3.5 & 4) Sanskrit

Classes 45

Marks

(A) Prescribed Courses

Theory -20

SECTION I - पूजासामग्रीणां परिचयः

SECTION II - उपचाराः

SECTION III - नवग्रहाणाम् अन्यमुख्यदेवतानां च परिचयः

SECTION IV - तिथीनां पुण्यक्षणानां च परिचयः

प्रायोगिक: 30

(B)Course Objectives:

This course aims :

- to provide an introduction to the materials used in the daily ritualistic practices like Puja and other Nitya-karma in Sanatana Dharma.
- to impart knowledge of the major Hindu sacraments (Samskaras)
- to familiarize the students with the auspicious lunar days (Tithis) and the propitious moments (Punya- muhurtas).

(C) Course Outcome: After studying this course students will be able

- to gain knowledge of the essential materials required in the ritualistic practices of Hindu religion or Sanatana Dharma.
- To acquire an understanding of the traditional Indian sacraments (Sacraments) prescribed in ancient Indian religious scriptures which are performed from birth till the time of death and even after death.
- to develop a clear comprehension of role of the Tithis (Lunar days) and some distinct auspicious moments in Hindu religious faith.

(D) Section Wise Division

SECTION I - पूजासामग्रीणां परिचयः

(Lectures 12)

पाद्यम्, अर्घ्यम्, , , , , : , , काष्ठानि, पञ्चरत्नम्,
पञ्चशस्यानि

SECTION II - उपचाराः

(Lectures 12)

पञ्चोपचारा; दशोपचारा; षोडशोपचारा:

SECTION III -नवग्रहाणाम् अन्यमुख्यदेवतानां च परिचयः (Lectures 11)

आदित्यादि-नवग्रहा; इन्द्रादि-लोकपाला; गणेशादि-पञ्चदेवता; नवदुर्गा; द्वादशज्योतिर्लिङ्गानि च

SECTION IV - तिथीनां पुण्यक्षणानां च परिचयः (Lectures 10)

युगाद्या, अक्षया, मन्वन्तरा, पुण्यतरा, अमृतक्षणम्, माहेन्द्रक्षणम्, त्र्यहस्पर्श; तिथयः

प्रायोगिकः

Pūjāvidhānasya Ādhāratattvāni- Sāmagryaḥ, Upacārāḥ, Pavitrakṣaṇāni, Tithayaśca

Pūjāsāmagrīnām Paricayaḥ

Pādyam, Arghyam, Ācamanīyam, Madhuparkaḥ, Pañcagavyam, Pañcāmṛtam, Navapatrkāḥ, Pañcapallavam, Grahayajñasya Kāsthāni, Pañcaratnam, Pañcaśaṣyāni

Upacārāḥ

Pañcopacārāḥ, Daśopacārāḥ, Ṣoḍaśopacārāḥ

Navagrahānām Anyamukhyadevatānām ca Paricayaḥ

Ādityādi-Navagrahāḥ, Indrādi-Lokapālāḥ, Gaṇeśādi-Pañcadevatāḥ, Nava-Durgāḥ, Dvādaśa-Jyotirtingāni

Tithīnām Puṇyakṣaṇānām ca Paricayaḥ

Yugādyā, Akṣayā, Manvantarā, Puṇyatarā, Amṛtakṣanam, Māhendraḥṣanam, Tryahasparśaḥ, Tithayaḥ

Practical

Recommended Books/ Readings

1. *Āhnika-Kṛtyam*, Shri Shyamacharan Kabiratna Bidyabaridhi (ed.), Rajendra Librabry, Kolkata, 2022
2. *Tithitattvam* of Shri Raghunandan Bhattacharya, edited by Ashok Kumar Bandyopadhyay, Sadesh, Kolkata, 2014
3. *Purohit-Darpan*, Surendra Mohan Bhattacharya (ed.), Satyanarayan Labrary, Kolkata, 1972.

Statistics

SEMESTER ONE

STA1101003SE: Computational Statistics Using MS Excel

Title of the course: Computational Statistics Using MS Excel

Course Code: STA1101003SE

Course Category: Skill Enhancement Courses

Level: 100, NCrf Level: 4.5 Credits: 1(L) -0(T)-2(P)-3(C)

Distribution of Marks: Internal Assessment: 0, Practical: 30, End Semester Examination: 20

Course objectives: To enable the students to

- Develop fundamental concepts in graphical and diagrammatic representation of data analysis in Ms Excel which is essential for the study.
- Know the basic concept of descriptive statistics.

Course Learning Outcomes: After completion of this course, the students will be able to

- I. Understand how to analysis the data in Excel.
- II. Apply different method of central tendency and dispersion.

Theory Part

Unit 1: Introduction

(Lectures: 04)

Workbooks and worksheets, Cell addresses, Entering and editing data, Saving files, Importing/accessing data, Mathematical operators in excel, Creating formulas and functions, Creating and formatting tables, Frequency Distribution tables, Data analysis Tool Pak.

Unit 2: Graphical and diagrammatic Representation of data in MS Excel

(Lectures: 04)

Graphical and diagrammatic Representation of data by Line Diagram, Bar diagram, histograms (equal class intervals and unequal class intervals), box plot, stem-leaf, frequency polygon, pie chart, ogives with graphical summaries.

Unit 3: Different measures of Central tendency and dispersion

(Lectures: 04)

Calculation of various measure of central tendency- Mean (Arithmetic, Geometric and Harmonic) Median, Mode, partition values, Measures of dispersion: range, quartile deviation, mean deviation, standard deviation in Excel.

Unit 4: Data analysis in MS Excel

(Lectures: 03)

Fitting of polynomials: Linear, Quadratic, Cubic and Exponential. Bivariate data: Scatter Diagram, Correlation, Covariance and Regression.

Practical will be done from unit 1 to Unit 4

Reference Books:

1. Schmuller, J. (2021). *Statistical analysis with Excel for dummies*. John Wiley & Sons.
2. Remenyi, D., Onofrei, G., & English, J. (2009). *An introduction to statistics using Microsoft Excel*. Academic Conferences Limited.
3. Winston, W. (2011). *Microsoft Excel 2010 Data Analysis and Business Modeling: Data Analysis and Business Modeling*. Pearson Education.

Zoology

ZOO1101003SE: ORNAMENTAL FISH AND FISHERIES

1stSemester

NCrF Level:	4.5
Programme:	Four-Year Undergraduate Programme
Difficulty Level:	100 levels
Course category:	Skill Enhancement Course (SEC)
Credits (L-T-P-C)	1-0-2-3
Evaluation Method:	End Semester 20%, Practical 30%

Total lectures: 15+60 (L+P)

Course Objective:

- To impart hands on training on feed and feeding technology
- To impart hands on training on setting up of aquaria and maintenance
- To generate export oriented employment in rural and urban households through ornamental fish production.
- To impart hands on training on culture, breeding of commercially important ornamental fishes
- To mass-produce a large number of varieties of ornamental fish species to create a large supply of ornamental fish and increase the overall exports.
- To promote employment and entrepreneurship in the ornamental fish sector by graduates in fisheries, aquaculture and biological sciences.

Course Learning Outcome:

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

- Understand the scope, importance and significance of ornamental fish culture.
- Identify indigenous and exotic ornamental fish species.
- Acquire knowledge on aquarium construction, management and maintenance.
- Understand feed, feeding management and live food culture techniques.
- Apply breeding, culture and health management practices of ornamental fishes.
- Analyse aquarium water quality parameters and maintain a healthy environment.
- Develop technical, communication and entrepreneurial skills through practical training, assignments and projects.

THEORY

15L (20 marks)

SECTION -1

Introduction to Ornamental Fish Industry: Scope and importance of ornamental fish industry, Status of ornamental fish trade in India and globally, Ornamental fish diversity of North East India;

Establishment and Management of Home Aquarium: Types of aquaria, Aquarium design and accessories, Aquarium setup and maintenance, Water quality management in aquarium (p^H , temperature, hardness, ammonia, nitrite), Aquarium plants and aqua scaping.

SECTION -2

Nutrition and Feeding Management: Natural food and artificial feeds of ornamental fishes, Feeding habits and feeding management, Strategies for maintenance and enhancement of natural colouration;

Breeding of Ornamental Fish: Natural breeding of *Tricogaster* species, Breeding behaviour and parental care, Basic breeding techniques of important ornamental fishes.

SECTION -3

Feed and Health Management: Nutritional requirements of ornamental fishes, Feed formulation and preparation of ornamental fish feed, Live feed culture (*Artemia*, *Moina*/*Daphnia*, *Infusoria*, *Tubifex*).

Aquarium Filtration and Disease Management: Biological filtration system, Establishment of nitrifying bacteria, Disease identification and treatment, Common bacterial, fungal and parasitic diseases.

SECTION -4

Ornamental Fish Farming and Management: Commercial production of ornamental fishes, Hatchery management, Health management in ornamental fish farming, Fish handling, packaging and transportation;

Entrepreneurship and Conservation: Marketing and export potential of ornamental fishes, Conservation of indigenous ornamental fish resources, Sustainable ornamental fish culture practices.

ORNAMENTAL FISH AND FISHERIES

PRACTICAL

(30 marks)

1. Identification of Ornamental Fish.
2. Identify and describe the aquarium accessories with their use and maintains.
3. Culture of Indigenous ornamental fish in Aquarium.
4. Estimation of Physio-chemical characteristics of Aquarium water.
5. Identify and describe an aquarium plants (*any five*).
6. Preparation and maintenance of live feed culture for ornamental fishes.
7. Setting up of an Aquarium and maintenance.

SUGGESTED READINGS

- Jhingran, V.G. (1985) : Fish and Fisheries of India
- Rath, R.K. (2000) : Freshwater Aquaculture
- Gupta, S.K and Gupta, P.C (2008) : General and applied ichthyology (Fish and Fisheries)
- Ayyappan, S (2010) : Handbook of Fisheries and Aquaculture
- Pillay, T.V.R (1993) : Aquaculture Principles and Practices
- Srivastava, C.B.L (2006) : A textbook of fishery science and Indian fisheries
- Paulraj, R (1997) : Aquaculture feed
- Agarwal, S.C. (2007) : A Handbook of Fish Farming
- Zaidi, S.G.S (2002) : Ornamental fish culture
- Mahapatra, B.K., Dutta S., Pailan, G.H.(2015) : Ornamental Fish Breeding, Culture and Trade
- Ahilan, B., Felix, N., Santham, R., (2008) : A text book of Aquaculture
- Dholakia A.D. (2010) : Ornamental Fish culture and Aquarium Management