Tribhuvan University

Faculty of Education

Office of the Dean

BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY EDUCATION (BICTE)

Curriculum 1st Semester

Effective from the Administration Batch 2078 BS

Office of the Dean
Faculty of Education
Tribhuvan University
Kathmandu

प्राज्ञिक परिषद्को कार्यालय
कीर्तिपुर

Faculty of Education
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Balkhu, Kathmandu

BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY EDUCATION (BICTE)

Curriculum

First Semester

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List of Subject

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Introduction

1. Faculty of Education (FOE)

The faculty of education (FOE) is a leading institution in the field of teacher education in Nepal. It was started as the College of Education in 1956, before the establishment of Tribhuvan University (TU) in 1959. Since its establishment, FOE has been implementing pre-service and in-service teacher education program through its constituent and affiliated campuses located in different parts of the country. The faculty of Education (FOE) is the largest faculties under Tribhuvan University in terms of the number of students and the number of campuses that are ever-increasing. With its 26 constituent campuses and 560 affiliated campuses throughout the country, it has the biggest network of teacher training. FoE has been contributing to the nation by producing and supplying all kinds of human resources needed for schools and educational sector of the country. It has conducted diverse educational programmes in a wider range of subject areas including social studies, science and information communication and technology education (ICT) education. Faculty of Education (FOE) currently offers educational programs in Bachelor of Education (B.Ed.), Master of Education (M.Ed.), Master of Philosophy (M.Phil.) and Doctor of Philosophy (PhD) in Education. Bachelors and Masters programmes are blended with the academic contents and professional courses.

2. FOE's Mission and Aim

Vision

Faculty of Education envisions the promotion of quality education across the country through the preparation of highly qualified teachers.

Mission

The mission of Faculty of Education is to provide leadership to teacher education and professional development in the country by developing itself as a center of excellence for teacher education and training, educational studies, research and innovation.

Goals

The goal of FOE is to produce trained teachers, teacher educators, and educational researchers for the country. It also aims at producing educational planners and managers, curriculum designers and human resources needed for the educational sector of the country through its different programmes. It also aims to transcend knowledge, skills and abilities through a sound pedagogical system in order to prepare educated manpower well equipped with sound knowledge and functional capacities

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3. Introduction to Bachelor of Education Program

University (TU) has undergone changes from time to time according to the needs and demands of the country. Since its establishment, College of Education/FoE had introduced two-year Bachelor of Education (B.Ed.) combining subject specific courses (Nepali, English, Science, Mathematics, Health and Physical Education, Social Studies etc.) with professional pedagogical courses including teaching practice with a view to producing trained teachers within two years and supplying them to secondary schools. This type of tradition and practices in teacher preparation programme continued for four decades. Duration of B.Ed. Program was increased from two years to three years in 1996. FoE had implemented three-year B.Ed. Programmes up to 2015.

Bachelor of Education (B.Ed.) conducted by Faculty of Education (FoE), Tribhuvan Before 1996 Two-Year B. Ed. with single area specialization was in practice for several years. In order to address the criticism made against the graduates of two-year B.Ed. programme as being poor in contents, the duration of B.Ed. programme was made Three-Year with single area specialization from 1996. Four –year B. Ed. with two areas specialization has been implemented since 2016 according to the needs of the schools and demands of Ministry of Education. Four-year B.Ed. is integrated undergraduate programme that combines theoretical courses in different subject areas such as English, Nepali, Science, Mathematics, History, Political Science, Economics, Geography, Population, Social Studies, Health and Physical education, and core professional courses including teaching practicum. Four-Year B.Ed. with major Information and Communication Technology Education (ICTE) had been implemented in five constituent campuses and seven affiliated colleges for five years. In 2021 B.Ed. ICT programme was modified into BICTE Programme.

4. Bachelor of Information and Communication Technology Education (BICTE) Programme

Bachelor of Information and Communication Technology Education is a new and specialized programme of FOE, which has been implementing in its Constituent and Affiliated Campuses since 2021. BICTE is 8 semesters (4 years) undergraduate degree programme, which provides students a broad rage of proficiency in Information and Communication Technology hardware concept, programming, data structure, management

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information system, computer graphics, computer graphics, Artificial Intelligence, Web Programming, software development, and foundation knowledge and skills to be a ICT teachers. The BICTE programme is designed to prepare students with sound knowledge and skills in ICT as well as pedagogy for teaching computer science, and providing innovative solution to education of digital world.

5. Goal and Objectives of BICTE Programme

The goal of Bachelor of Information and Communication Technology Education (BICTE) program is to develop socially responsive, creative, and result oriented information communication technology (ICT) professionals in the field of education sector. It aims at equipping graduates with the skills and attributes required to be effective and efficient teacher professionals in the field of Information and Communication Technology Education

6. The Objectives of the programme

These are the specific objective of programme

- Prepare competent ICT teachers/instructors for teaching computer science, digital pedagogical and ICT related discipline in schools and education sectors of the country
- Prepare IT professionals proficient in the use of computers and computational techniques in order to develop effective application and system to solve real life problems in the educational industries.
- Prepare students to proceed on to postgraduate level study in ICT within and outside the country.

7. Eligibility Condition for Admission

The candidate applying for admission to the BICTE program must have

- Successfully completed a twelve-year schooling (grade 12) or its equivalent from any university, board or institution recognized by Tribhuvan University.
- Minimum C grade in each subject of grade 12 with CGPA 2 or more / Secured at least second division in the 10+2, PCL or equivalent program; and
- Complied with all the application procedure.

8. Admission Criteria

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Written Test: Eligible applicants are required to appear in the central level entrance test commonly known as Central Education Admission Test (CEAT) conducted by the Faculty of Education. The test will follow the international testing pattern and standards. It includes the areas like: ICT skill and interest, language understanding, logical reasoning and educational philosophy understanding.

There shall be altogether one hundred (100) objective questions in the CEAT containing ICT skill test (40%), Mathematical Test (25%), English Skill (15%) and Educational GK (20%) questions in each section with a total weight of 100 marks. Student must secure a minimum of 40% in the CEAT in order to qualify for the interview.

Interview: Applicants securing above cut off point marks in the CEAT will be short-listed. Only short-listed candidates will be interviewed and selected for admission as per the need of campus.

9. Instructional Techniques

The instructional techniques in BICTE program will be the combination of several approaches. Class lecture, group discussion, demonstration, guest lecture, field visit etc. are instructional techniques regularly used. Importantly, seminars, case analysis, problem solving and field work approaches will be used as specific instructional techniques for giving instruction in the effective delivery of courses. Technology integration and digital pedagogy should be applied to teaching learning process.

10. Teaching Hours:

Each semester will be of 5 months. The teaching hours for courses depend on the nature of courses whether it is full theoretical, or theoretical and practical, and practical, or fully practical. Most of the courses are of 3 credit hours. One credit hour in theoretical courses carries 16 teaching hours and course of 3 credit hours will have 48 teaching hours. For fully practical, and theoretical and practical courses, one credit hour will have 32 to 48 teaching hours departing on the specialization areas.

11. Teaching Practicum

In the final semester, students shall be attached to educational institutions where they have to work for a period of seven weeks. Each student shall prepare an individual project report in the prescribed format based on his / her work in the respective organization assigned to him / her.

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Evaluation of the internship shall be based on the confidential report by the organization, project report and presentation of the report. The report must be submitted by the end of the eighth semester. Students must secure a minimum grade of "C" in the internship. The internship carries a weight equivalent to 3 credit hours.

12. Examination, Evaluation and Grading System

The BICTE program will be executed through the semester system. The regular program shall be completed in eight semesters. The internal (ongoing) evaluation and the external (end of semester) examination shall carry 40 percent and 60 percent weightage respectively. The semester examinations shall be conducted by FOE. The final grade of the student shall be determined on the overall performance in the internal and external examinations.

13. Passing Grade and Grading System

The final evaluation of students is done through the examination conducted by Tribhuvan University. Students must secure a minimum of grade 'B-' or Grade Point Average (GPA) of 2.70 in the internal evaluation in order to qualify to appear in the semester examination. In order to pass the semester examination, the student must secure a minimum of grade 'B-' or the Cumulative Grade Point Average (CGPA) of 2.70. The grading system shall be as follows:

Letter Grade	GP	SGPA / CGPA Range	Percentage Equivalent	Remarks
A	4	4	90 & above	(Distinction) Outstanding
A-	3.7	3.70 to 3.99	80-89.9	(First Division) Excellent
B+	3.3	3.30 to 3.69	70-79.9	(First Division) Very Good
B	3.0	3.00 to 3.29	60-69.9	(Second Division) Good
B-	2.7	2.70 to 2.99	50-59.9	(Third Division) Satisfactory
F	0	Below 2.70	Below 50	Fail

Note: GP: Grade Point, SGPA: Semester Grade Point Average, CGPA: Cumulative Grade Point Average

14. Make up/Retake Exam

Make up/Retake examination will be conducted as per the semester guideline 2074; section 4(10).

15. Attendance

Students are required to attend regularly all theory and practical classes, assignments, study tour, field trip, seminars and presentations as required by the course. A student is required to attend at least 80 percent of such activities in order to qualify for the semester examination.

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16. Credit Transfers and Withdraw

The program allows students to transfer the credits earned by them in similar program of other universities recognized by Tribhuvan University.

A student who has partially completed the BICTE program and would like to discontinue his / her studies shall also be allowed to withdraw from the program. In such cases, a certificate specifying the credit earned by the student in the program shall be provided.

17. Graduation Requirements

The BICTE program extends over eight semesters (four academic years). The BICTE degree is awarded upon its successful completion of all the following requirements specified by the curriculum. Thé successful completion of 132 credit hours as prescribed with a minimum of passing grade in all courses with an aggregate CGPA of 2.70. Completion of courses for the fulfillment of the requirements of the BICTE program must occur within seven years from the time of registration.

18. Curricular Structure

The BICTE program requires the students to study 4 Year 8 Semester and 132 credit hours. The curricular structure of the program comprises of the following eight separate course components.

S.N.	Course Categories	Semester								Total Course	Total Credit Hours (3 Credit to each)
		1st	2nd	3rd	4th	5th	6th	7th	8th		
1	Communication Skills	2	2	-	-	-	-	-	-	4	12
2	Professional/Core Education	1	1	1	1	1	1	1	1	8	24
3	ICT Core Courses	2	2	3	3	3	4	2	2	21	63
4	Specialization/Elective	-	-	-	-	-	-	1	1	2	6
5	Math and Analytical Course	1	1	1	1	1	-	-	-	5	15
6	Life Skills	-	-	1	1	-	-	-	-	2	6
7	Capstone Project	-	-	-	-	-	-	1	-	1	3
8	Teaching Practice	-	-	-	-	-	-	-	1	1	3
Total		6	6	6	6	5	5	5	5	44	132

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Course Titles:

1. **Communication Skills Course**
    1.1 Eng. Ed. 411: English Language-I
    1.2 नेपा .शि .४११ :साधारण नेपाली-१
    1.3 Eng. Ed. 421: English Language-II
    1.4 ने शि .४२१ :साधारण नेपाली-२
2. **Professional/Core Education Course**
    2.1 Ed. 411: Fundamental of Education
    2.2 Ed. 422: Developmental Psychology
    2.3 Ed. 432: Learning Psychology
    2.4 Ed. 442: Fundamentals of Curriculum
    2.5 Ed. 452: Assessment in Teaching and Learning
    2.6 Ed. 462: Research Methods in Education
    2.7 Ed. 472: Research Project
    2.8 Ed. 482: Classroom Pedagogy
3. **Mathematics and Analytical Course**
    3.1 Math Ed. 416: Mathematics-I
    3.2 Math Ed. 426: Mathematics-II
    3.3 Math Ed. 436: Probability and Statistics
    3.4 Math Ed. 447: Numerical Analysis
    3.5 Math Ed. 456: Discrete Mathematics
4. **Life Skills course**
    4.1 ICT Ed. 438: 21st Century life Skill
    4.2 Ed. 444: Educational Leadership in Digital Era
5. **ICT Core Courses**
    5.1 ICT Ed. 415: Introduction to Information Technology
    5.2 ICT Ed. 416: Programming Concept with C
    5.3 ICT Ed. 425: Digital Logics
    5.4 ICT Ed. 426: Object Oriented Programming with C++
    5.5 ICT Ed. 435: Data Structure and Algorithm
    5.6 ICT Ed. 436: Computer Architecture and Organization
    5.7 ICT Ed. 437: Web Technology
    5.8 ICT Ed. 445: Operating System
    5.9 ICT Ed. 446: Database Management System
    5.10ICT Ed. 447: System Analysis and Design
    5.11ICT Ed. 455: Java Programming Language
    5.12ICT Ed. 456: Data Communication and Networks
    5.13ICT Ed. 457: Software Engineering and Project Management
    5.14ICT Ed. 465: Visual Programming
    5.15ICT Ed. 466: Computer Graphics
    5.16ICT Ed. 467: Digital Pedagogy and LMS
    5.17ICT Ed. 475: Network and Information Security
    5.18ICT Ed. 476: Artificial Intelligence in Education
    5.19ICT Ed. 477: Teaching Methods for ICT
    5.20 ICT Ed. 486: System administrator with Linux
    5.21ICT Ed 487: Python Programming
6. **Specialization/Elective course**
    Elective I(Any one):
    6.1 ICT Ed 478 Geographical Information System (GIS)
    6.2 ICT Ed 479 Big Data Analysis
    Elective II(any One):
    6.3 ICT Ed 488 Cloud Computing
    6.4 ICT Ed 489 Multimedia Technology
7. **Capstone Project**
    7.1 ICT Ed. 480: Capstone Project
8. **Teaching Practice**
    8.1 Ed 481 Teaching Practices in ICT

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Semester Break Down for First and Second Semester:

First Semester (6 x 3=18 Credit)		**Second Semester (6 x 3=18 Credit)**	
S.N.	Course Titles	S.N.	Course Titles
1	Eng. Ed. 411: English Language-I	1	Eng. Ed. 421: English Language-II
2	Nep. Ed.411: General Nepali-1	2	ने शि .४२१ :साधारण नेपाली-२
3	Ed. 411: Fundamental of Education	3	Ed. 422: Developmental Psychology
4	Math Ed. 416: Mathematics-I	4	Math Ed. 426 Mathematics-II
5	ICT Ed. 415: Introduction to Information Technology	5	ICT Ed. 425: Digital Logics
6	ICT Ed. 416: Programming Concept with C	6	ICT Ed. 426: Object Oriented Programming with C++

Third Semester (6 x 3=18 Credit)		**Fourth Semester (6 x 3=18 Credit)**	
S.N.	Course Titles	S.N.	Course Titles
1	Ed. 432: Learning Psychology	1	Ed. 442: Fundamentals of Curriculum
2	ICT Ed. 435: Data Structure and Algorithm	2	ICT Ed. 445: Operating System
3	ICT Ed. 436: Computer Architecture and Organization	3	ICT Ed. 446: Database Management System
4	ICT Ed. 437: Web Technology	4	ICT Ed. 447: System Analysis and Design
5	Math Ed. 436: Probability and Statistics	5	Math Ed. 446: Numerical Analysis
6	ICT Ed. 438: 21st Century life Skill	6	Ed. 444: Educational Leadership in Digital Era

Fifth Semester (5 x 3=15 Credit)		**Sixth Semester (5 x 3=15 Credit)**	
S.N.	Course Titles	S.N.	Course Titles
1	Ed. 452: Assessment in Teaching and Learning	1	Ed. 462: Research Methods in Education
2	ICT Ed. 455: Java Programming Language	2	ICT Ed. 465: Visual Programming
3	ICT Ed. 456: Data Communication and Networks	3	ICT Ed. 466: Computer Graphics
4	ICT Ed. 457: Software Engineering and Project Management	4	ICT Ed. 467: Digital Pedagogy
5	Math Ed. 456: Discrete Mathematics	5	ICT Ed. 475: Network and Information Security

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Seven Semester (5 x 3=15 Credit)		Eight Semester (5 x 3=15 Credit)	
S.N.	Course Titles	S.N.	Course Titles
1	Ed. 472: Research Project	1	Ed. 482: Classroom Pedagogy
2	Ed. 476: Artificial Intelligence in Education	2	486: System administrator with Linux
3	ICT Ed. 477: Teaching Methods for ICT	3	487: Python Programming
4	**Elective I(Any one):** ICT Ed 478 Geographical Information System (GIS) ICT Ed 479 Big Data Analysis	4	**Elective II (any One):** ICT Ed 488 Cloud Computing ICT Ed 489 Multimedia Technology
5	ICT Ed. 479: Capstone Project	5	ICT Ed 490 Teaching Practicum in ICT

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BICT First Semester Full Course

ने.शि. ४११ : साधारण नेपाली-१

पाठ्यांश सङ्केत : ने.शि. ४११ पाठ्यांश प्रकृति : सैद्धान्तिक

तह : स्नातक क्रेडिट आवर : ३

सेमेस्टर : पहिलो शिक्षण घन्टी : ४८

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१. पाठ्यांशको परिचय

यस पाठ्यांशले नेपाली भाषामा विशिष्ट बोध, अभिव्यक्ति र रचना कौशलको विकास गर्ने लक्ष्य राखेको छ । यस पाठ्यांशमा नेपाली भाषाको परिचय, यसका मानक कथ्य र लेख्य रूपको स्वरूप र प्रकार्य क्षेत्र, शब्दभण्डार, वाक्यतत्त्वपरक रचना, नेपाली वाङ्मयका विविध क्षेत्रका गद्यांशको पठनबोध, बुँदाटिपोट र संक्षेपीकरणको अभ्यास, व्यावहारिक लेखन तथा सूचना तथ्यको रूपान्तरका साथै निर्धारित साहित्यिक कृतिहरूको पठन, आस्वादन र अभिव्यक्ति क्षमताको विकास गर्ने पाठ्यवस्तु राखिएका छन् ।

२. साधारण उद्देश्यहरू

यस पाठ्यांशका साधारण उद्देश्यहरू निम्नानुसार रहेका छन् :

- नेपाली भाषाको स्वरूप, प्रयोगको स्थिति र प्रकार्य क्षेत्रका साथै सन्दर्भपूर्ण वाक्य निर्माणमा सक्षम तुल्याउने,
- निर्धारित गद्यांशबाट विशिष्ट बोध प्रश्नको उत्तर लेखन, बुँदाटिपोट र संक्षेपीकरणको अभ्यासमा दक्ष बनाउने,
- निर्धारित वाक्यकोटिमा आधारित भई स्वतन्त्र र निर्देशित रचना लेख्न सक्षम तुल्याउने,
- व्यावहारिक लेखनको सिप विकासमा दक्ष बनाउने,
- तालिका, चित्राकृति, रेखाचित्र र आरेखका सूचनालाई अनुच्छेदमा रूपान्तरण गर्न सक्ने बनाउने,
- निर्दिष्ट साहित्यिक विधा सरसरती पठन, आस्वादन र प्रतिक्रिया लेखनको अभ्यास गराउने ।

३. विशिष्ट उद्देश्य र पाठ्यवस्तु

विशिष्ट उद्देश्य	पाठ्यवस्तु
• नेपाली भाषाको कथ्य र लेख्य रूपको परिचय दिन • नेपाली भाषाको प्रयोग क्षेत्र बताउन • पहिलो र दोस्रो भाषाका रूपमा नेपाली भाषाको स्थिति पहिल्याउन • नेपाली भाषाका विशिष्ट प्रकार्यहरू उल्लेख गर्न • नेपालीका शब्दस्रोत र शब्दवर्गको पहिचान गरी तिनको प्रयोग गर्न • शब्दनिर्माणको प्रकिया बताउन	**एकाइ एक : नेपाली भाषाको परिचय, प्रयोग र शब्दभण्डार** (८) १.१ कथ्य र लेख्य नेपाली भाषा १.२ नेपाली भाषाको प्रयोगक्षेत्र १.३ पहिलो भाषाका रूपमा नेपाली भाषाको प्रयोग १.४ दोस्रो भाषाका रूपमा नेपाली भाषाको प्रयोग १.५ नेपाली भाषाका विशिष्ट प्रकार्यहरू १.५.१ शिक्षा १.५.२ साहित्य १.५.३ कानुन १.५.४ सञ्चार १.५.५ प्रशासन १.५.६ ज्ञानविज्ञान १.६ नेपाली शब्दभण्डार १.६.१ शब्द स्रोत • तत्सम • तद्भव

	• आगन्तुक शब्दहरूको प्रयोग र प्रस्तुति १.६.२ शब्दवर्गको प्रयोग र प्रस्तुति • नाम, सर्वनाम, विशेषण • क्रिया, नामयोगी, क्रियायोगी • संयोजक, विस्मयादिबोधक • निपात १.६.३ शब्दनिर्माण प्रक्रियाको प्रयोग र प्रस्तुति • सर्गपद्धति – उपसर्ग, प्रत्यय (कृत्, तद्धित) • समास र द्वित्व पद्धति
• नेपाली वाङ्मयका विभिन्न विषयक्षेत्रसँग सम्बन्धित बोधात्मक प्रश्नको उत्तर दिन। • विभिन्न विषयक्षेत्रसँग सम्बन्धित बुँदाटिपोट र संक्षेपीकरणको प्रयोग र अभ्यास गर्न, • वाक्यकोटिअनुरूप वर्णनात्मक प्रकृतिका स्वतन्त्र अनुच्छेद रचना गर्न, • निर्देशित वाक्यकोटिलाई वाक्यान्तरण गर्न ।	**एकाइ दुई : पठनबोध, बुँदाटिपोट, सङ्क्षेपीकरण र वाक्यतत्वपरक रचना** (१६) **२.१ पठनबोध** २.१.१ नेपाली वाङ्मयका विविध क्षेत्र र विषयसँग सम्बन्धित सामान्य र विशिष्ट बोध प्रश्नहरूको उत्तर लेखन र प्रस्तुति (भाषा, साहित्य, शिक्षा, भूगोल, कृषि, अर्थवाणिज्य, सूचना तथा सञ्चार, मनोविज्ञान, समाज, संस्कृति, दर्शन, विज्ञान तथा प्रविधि र स्वास्थ्य, वातावरण, कानुन, खेलकुद) **२.२ बुँदा टिपोट र संक्षेपीकरण** २.२.१ बुँदाटिपोटको प्रयोग र प्रस्तुति २.२.२ संक्षेपीकरणको प्रयोग र प्रस्तुति २.३ **वाक्यतत्त्वपरक रचना** २.३.१ लिङ्ग, वचन, पुरुष र आदरका आधारमा स्वतन्त्र रचना २.३.२ लिङ्ग, वचन, पुरुष र आदरका आधारमा वाक्यान्तरण
• व्यावहारिक लेखन गर्न ।	**एकाइ तिन : व्यावहारिक लेखन** (६) ३.१ निवेदन ३.२ भर्पाई ३.३ मन्जुरीनामा ३.४ तम्सुक ३.५ जाहेरी ३.६ कार्यालयीय टिप्पणी ३.७ भौचर (गोश्वारा भौचर र बैङ्क भौचर)
• सूचना र तथ्यलाई अनुच्छेदमा रूपान्तर गर्न,	**एकाइ चार : सूचना र तथ्यको रूपान्तरण** (६) ४.१ तालिका तथा चित्राकृति (वृत्ताकार तथा स्तम्भाकृति) मा प्रस्तुत सूचना र तथ्यलाई अनुच्छेदमा रूपान्तर ४.२ रेखाचित्र तथा आरेखमा प्रस्तुत तथ्य र सूचनालाई अनुच्छेदमा रूपान्तर

• निर्धारित साहित्यिक कृतिको सरसर्ती अध्ययन गरी प्रतिक्रियात्मक उत्तर लेखन ।	**एकाइ पाँच : साहित्यिक कृतिको पठन, आस्वादन र प्रतिक्रियात्मक लेखन** (१२)

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	५.१ कथा ५.१.१ विश्वेश्वरप्रसाद कोइराला : **एक रात** ५.१.२ भागीरथी श्रेष्ठ : **मातृत्वको चित्कार** ५.१.३ राजेन्द्र विमल : **चरा बोल्छ** **५.२ कविता** ५.२.१ लक्ष्मीप्रसाद देवकोटा : **यात्री** ५.२.२ माधवप्रसाद घिमिरे: **एकै र मुठी धरतीको धूलो** ५.२.३ अमर गिरी : **चराका गीतहरू** **५.३ निबन्ध :** ५.३.१ शङ्कर लामिछाने : **जीवन : एक प्राध्यापक** ५.३.२ भैरव अर्याल : **महापुरुषको सङ्गत** **५.४ एकाङ्की** ५.४.१ हृदयचन्द्रसिंह प्रधान : **मरुभूमिका लेखक**

४. प्रायोगिक क्रियाकलाप र शिक्षण प्रविधि

प्रायोगिक क्रियाकलाप र शिक्षण प्रविधिलाई दुई समूहमा विभाजन गरिएको छ : पहिलोमा साधारण शिक्षण प्रविधि र दोस्रोमा विशिष्ट शिक्षण प्रविधि ।

४.१ साधारण शिक्षण प्रविधि

प्रत्येक एकाइमा आवश्यकताअनुसार शिक्षकले सम्बन्धित विषयवस्तुको प्रस्तुति, व्याख्यान, छलफल, प्रश्नोत्तर गराई विद्यार्थीहरूलाई तत्सम्बन्धी अभ्यास गर्न लगाइने छ ।

४.२ विशिष्ट शिक्षण प्रविधि

एकाइ		क्रियाकलाप
एक		सामूहिक क्रियाकलापका रुपमा शब्द स्रोत, शब्दवर्ग र शब्दनिर्माण प्रक्रियाको प्रयोग र प्रस्तुति गर्न लगाउने
दुई		• बुँदाटिपोट र संक्षेपीकरणको प्रयोग र प्रस्तुतिमा व्यक्तिगत र सामूहिक अभ्यास गराउने • लिङ्ग, वचन, पुरुष र आदरका आधारमा स्वतन्त्र र निर्देशित रचना लेख्ने अभ्यास गराउने र कक्षामा प्रस्तुत गर्न लगाउने
तिन		प्रयोजनपरक बोधको अभ्यास र प्रस्तुतिमा व्यक्तिगत र सामूहिक अभ्यास गराउने ।
चार		जोडी समूहमा विभिन्न प्रकारका निर्देशित र स्वतन्त्र अनुच्छेद तथा निबन्धलेखनका साथै प्रतिवेदन लेखन र कक्षा प्रस्तुतिमा सहभागी गराउने ।
पाँच		निर्धारित साहित्यिक कृतिको पठन, आस्वादन र प्रतिक्रियात्मक लेखनका लागि व्यक्तिगत वा सामूहिक अभ्यास गर्न लगाउने ।

५. मूल्याङ्कन प्रक्रिया

मूल्याङ्कन दुई प्रकारले गरिनेछ :

५.१ आन्तरिक मूल्याङ्कन : यसका निम्ति चालिस प्रतिसत अङ्क निर्धारण गरिएको छ ।

आन्तरिक मूल्याङ्कन (४० प्रतिशत)

क्रियाकलाप	अङ्क

प्राज्ञिक परिषद्को कार्यालय कीर्तिपुर

Faculty of Education Office of the Dean Balkhu, Kathmandu

• उपस्थिति	५
• सिकाइ क्रियाकलापमा सहभागिता	५
• पहिलो आन्तरिक परीक्षा	१०
• दोस्रो आन्तरिक परीक्षा	१०
• तेस्रो आन्तरिक परीक्षा	१०
जम्मा	**४०**

५.२ **बाह्य मूल्याङ्कनः** यसका निम्ति साठी प्रतिशत अङ्क निर्धारण गरिएको छ । आन्तरिक मूल्याङ्कन कक्षा शिक्षणसँगै गरिनेछ र बाह्य मूल्याङ्कन डिन कार्यालयले निर्धारण गरेको सेमेस्टर प्रणालीअनुसार हुने छ । यसका लागि निम्नानुसारको प्रश्नका लागि निम्न अनुसारको अङ्क विभाजन गरिएको छ ।

बाह्य परीक्षा (६० प्रतिशत)

प्रश्नको किसिम	**अङ्क**
• वस्तुगत प्रश्न (१०×१ =१०)	१०
• संक्षिप्त उत्तरात्मक प्रश्न (वैकल्पिक २) (६× ५ = ३०)	३०
• विवेचनात्मक प्रश्न (वैकल्पिक १) (२×१० = २०)	२०
जम्मा	**६०**

पाठ्यपुस्तक

गौतम, देवीप्रसाद, भण्डारी, पारसमणि र ओझा, रामनाथ (२०७०), *स्नातक नेपाली,* काठमाडौं : विद्यार्थी पुस्तक भण्डार (सम्बद्ध अंश मात्र) ।

सन्दर्भ सामग्री

अर्याल, भैरव (२०७१), *जयभुँडी,* काठमाडौं : रत्न पुस्तक भण्डार । (एकाइ पाँचका लागि)

कोइराला, विश्वेश्वरप्रसाद (२०६०), *दोषी चस्मा,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

गौतम, देवीप्रसाद र घिमिरे, कृष्णप्रसाद (सम्पा.) (२०६३), *नेपाली कथा भाग ३,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

गिरी, अमर (२०६३), *चराका गीतहरू,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

घिमिरे, माधवप्रसाद (२०६०), *किन्नरकिन्नरी,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

देवकोटा, लक्ष्मीप्रसाद (२०६२), *लक्ष्मी कविता सङ्ग्रह,* ललितपुर : साझा प्रकाशन ।

प्रधान, हृदयचन्द्रसिंह (२०६१), 'मरुभूमिका लेखक', *साझा एकाङ्की,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

लामिछाने, शङ्कर (२०५८), *गोधूली संसार,* ललितपुर : साझा प्रकाशन । (एकाइ पाँचका लागि)

विमल, राजेन्द्र (२०६१), *आँखाका समयहरू,* काठमाडौं : साङ्ग्रिला प्रकाशन । (एकाइ पाँचका लागि)

प्राज्ञिक परिषद्को कार्यालय
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Eng. Ed. 411: General English I
Course No. : Eng. Ed. 411
Level: Bachelor
Semester: First

Program: BICTE
Nature of the course: Theoretical
Credit hours: 3
Teaching hours: 48

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1. Course Description

This is a general English course designed to develop students' proficiency in grammar, academic vocabulary, reading and writing. The grammar component includes elements ranging from tenses to transformation. Vocabulary component covers words from different academic fields. The reading component deals with a wide variety of carefully selected materials that include informative passages on contemporary and critical issues. The writing component includes materials required for effective communication on matters of general and academic interests.

2. General Objectives

The general objectives of this course are as follows:

- To help students use grammatically correct English.
- To expand students' repertoire of general and academic vocabulary.
- To develop students' ability to comprehend and interpret different kinds of written texts.
- To enable them to compose different kinds of writings for effective communication on matters of general and academic interests.

3. Specific Objectives and Contents

Specific Objectives	Contents
• Make sentences using appropriate tenses • Use modals and verbs correctly • Supply correct prepositions, adjectives and adverbs • Apply conditionals in the given contexts • Form words and sentences	**Unit I. Grammar (10)** 1.1. Tenses 1.2. Modals 1.3. Questions, multi-words, verbs and verb structures 1.4. Determiners and prepositions 1.5. Adjectives and adverbs 1.6. Passive and conditionals 1.7. Word formation and sentences
• Identify and use academic vocabulary in a given discourse. • Apply appropriate ways to enrich their academic vocabulary.	**Unit II: Vocabulary (8)** 2.1 Working with academic vocabulary 2.2 Word combinations 2.3 Vocabulary at academic institutions 2.4 Ways of talking about 2.5 Opinions and ideas 2.6 Functions 2.7 Reading and vocabulary 2.8 Reference

• Extract general idea from texts. • Find specific information in the text. • Answer questions for the details in the given text. • Read and make notes of the important points. • Draw inferences from varieties of reading texts. • Give opinions and express attitudes. • Interpret different types of texts. • Solve problems and puzzles	**Unit III: Reading** **(15)** 3.1 Determining co-references 3.2 Matching things 3.3 Understanding instructions 3.4 Unscrambling texts and anagrams 3.5 Scanning: locating and extracting information 3.6 Skimming: finding out main point and the central idea 3.7 Drawing inferences and implications 3.8 Assessing opinions and attitudes 3.9 Solving problems and puzzles
• Rewrite given texts in different forms. • Compose short and long texts in the given topics. • Maintain coherence and cohesion in writing. • Write letters, resumes, summaries, reports, news and essays.	**Unit IV: Writing** **(15)** 4.1 Rewriting: rephrasing and paraphrasing 4.2 Parallel writing 4.3 Completing a text 4.4 Organizing a text: sequencing instructions, ordering information and connecting ideas 4.5 Writing summaries 4.6 Writing letters: personal, official, business and job application 4.7 Writing curriculum vitae (resume) 4.8 Writing reports: events and news 4.9 Writing essays: descriptive, expository, narrative and argumentative

Note: The figures in the parentheses indicate the approximate teaching hours allotted to represented units.

4. Instructional Techniques

The instructional techniques for this course are divided into two groups. First group consists of general instructional techniques applicable to most of the units. The second group consists of specific instructional techniques applicable to specific units.

4.1 General Instructional Techniques

Following general techniques are suggested for the overall delivery of the course.

- Lecture
- Discussion
- Explanation
- Illustration
- Demonstration
- Quizzes
- Presentation

It is expected that students are fully engaged in the lesson and sessions are interactive while presenting the lesson.

4.2 Specific Instructional Techniques

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Some specific techniques are suggested to ensure the active engagement of the students.

Unit I	Small group discussion for the various grammar elements, pair works to find out the rules of language, mini-projects to research the various grammar elements in the texts. Groups will present their work followed by teacher's feedback.
Unit II	Individual practice, small group discussion and pair work.
Unit III	Individual study, pair works for reading tasks and presentation.
Unit IV	Individual assignment on various writing tasks, small group discussion and presentation.

In addition to the techniques mentioned above, observation of an English language class where children with different abilities are studying followed by presentation is also encouraged in all the units.

5. Evaluation

5.1 Internal Evaluation 40%

Internal evaluation will be conducted by course teacher based on following activities:

- Attendance 05 Points
- Participation in learning activities 05 points
- First assignment/midterm exam 10 points
- Second assignment/assessment (1 or 2) 10 points
- Third assignment/assessment 10 points

Total 40 points

5.2 External Evaluation (Final Examination) 60%

Examination Division, Office of the Dean, Faculty of Education will conduct final examination at the end of the semester. Types of questions and the points allocated for them are as follows:

- Objective type question (Multiple choice 10 × 1 10 points
- Short answer questions (6 questions with 2 OR × 5 points) 30 points
- Long answer questions (2 questions with 1 OR × 10) 20 points

Total 60 points

6. Recommended Books and Reference Materials

Recommended Books

Awasthi, J. R. ,Bhattarai, G. R. & Rai, V.S. (eds.) (2015). English for new millennium. Kathmandu: Vidyarthi Publication. **(For units III to IV) (Lessons from 1 – 30: page 1 - 138)**

McCarthy, M. & O'De, F. (2009). *Academic Vocabulary in Use*. Delhi: Cambridge University Press. **(For unit II)**

Fiona, D. & wayne, R. (2011). *Active Grammar, Level 2.* Cambridge. Cambridge University Press. ***(for Unit I)***

Following Lessons have been selected from the book English for the New Millennium:

1) Unit I: Legend, Lore and Education
    a. Start of Kali Yuga
    b. The Mirror of Matsuyama
2) Unit II: Short Stores
    a. The three Dancing Goats
    b. The Necklace
    c. The Gift of the Magi
    d. The Library
    e. The Open Window
3) Unit III: Non Fictional/Factual Writings
    a. Decayed teeth
    b. Women's Empowerment and Identity
    c. The Strange Looking Man
    d. The Spanish Chruch
4) Unit IV: Essays
    a. College Teachers
    b. Non-Violence
    c. The Happy Man
5) Unit V: Interviews
    a. Nelson Mandel
6) Unit VI: One Act Plays
    a. The Passer-by
7) Unit VI: Memoir And Travel
    a. Stealing and Atonement
8) Unit VII: Journals
    a. Journal Writing-I
9) Unit IX: Novel Extract and Motion Picture
    a. The Alchemist
10) Unit X: Contemporary Topics
    a. Karl Marx
    b. Feminist Criticism
    c. Postmodernism
11) Unit XI: Poemsl
    a. A smile
    b. Ode to Tomatoes
    c. Do Not Say
    d. The Ballad of Dead Friend
    e. The Buddha's Wife
    f. Life is fine
    g. Punishment in Kindergarten
    h. Night of the Scorpion

Reference Materials

Hornby. A.S. (2010). Oxford Advanced Learner's Dictionary (8th Edition). Oxford: Oxford University Press.

Ed. 411**:** Fundamentals **of Education**

Course No. : Ed. 411	Nature of Course: Theoretical
Level: Bachelor Degree	Credit Hours: 3
Semester: First	Teaching hours: 48

1. Course Description

This course is designed to orient the students to theoretical and fundamental characteristics of education. It also deals with philosophical and sociological approaches to education. Similarly, it also covers educational thought of prominent educationists and recent trends of educational development in Nepal. It intends to develop an insight into the students in relation to bases of education focusing on interactive participation of both the students and teachers.

2. General Objectives

The course is designed with the following general objectives:

- To help students develop broader understanding on bases of education
- To familiarize the students with the approaches to education
- To assist the students to analyze the philosophical base of education within different schools of philosophy.
- To enhance the students' knowledge to analyze the sociological basis of education and identify its possible use in education.
- To acquaint the student with basic educational thought of prominent educationists.
- To make the students competent in reviewing the trends of educational development in Nepal at various periods.

3. Specific Objectives and Contents

Specific Objectives	Contents
• Clarify the concept of education as a discipline • Describe the characteristics of discipline • Elaborate the meaning of education • Define and conceptualize education • Explain the forms/types of education • State the nature of education	**Unit I: (8(** Introduction to Education **1.1** Education as a discipline 1.1.1 Meaning of education as a discipline 1.1.2 Characteristics of discipline 1.2 Meaning of education 1.2.1 Etymological 1.2.2 Narrow 1.2.3 Broader 1.3 Definitions of education 1.4 Major forms/types of education 1.4.1 Informal

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	1.4.2 Formal 1.4.3 Non-formal 1.5 Nature of education 1.5.1 Direct and indirect 1.5.2 Individual and collective 1.5.3 General and specific
• Explain the concept of approaches to education • Clarify concept of open and distance education and continuing education • State the process of open and distance learning • Elaborate needs of continuing education and skill-based and competency-based approaches to education • Draw implications of skill-based and competency-based approaches to education	**Unit: II Approaches to education (5)** 2.1 Open and distance learning 2.2.1 Concept 2.2.2 Process 2.2.3 Learning materials 2.2 Continuing education 2.2.1 Concept 2.2.2 Needs 2.3 Skill-based and competency-based approaches to education 2.3.1 Concept 2.3.2 Needs 2.3.3 Classroom implication
• Clarify concept, branches and functions of philosophy • Relate philosophy with education • Compare schools of philosophy in terms of its premises, objectives, curriculum , educative process, curriculum, role of teacher and student • Derive implications of philosophy of education for to-day's classroom teachers	**Unit III: Philosophical Perspectives on Education (14)** **1.3** Concept, branches and functions of philosophy **1.4** Relation between philosophy and education **1.5** Schools of philosophy: Philosophical premises, objectives of education, educative process, curriculum, role of teacher and student 1.5.1 Idealism 1.5.2 Naturalism 1.5.3 Realism 1.5.4 Pragmatism 3.4 Implications of schools of philosophy for classroom teachers
• Relate sociology with education • Describe concept and modes of socialization as a base of education • Illustrate the agencies of socialization • Explain concept and importance of social interaction as a base of education • Explain the patterns of social interaction as a base of education • Classify social interaction • Derive implications of sociological base of education for schools	**Unit IV: Sociological Bases of Education (8)** 4.1 Relation between sociology and education 4.2 Socialization as a base 4.2.1 Concept 4.2.2 Modes 4.3 Agencies of socialization 4.3.1 Active agencies 4.3.2 Passive agencies 4.4 Social interaction as a base 4.4.1 Concept and importance of social interaction 4.4.2 Patterns of social interaction 4.4.3 Classification

	4.6 Implications of sociological bases of education for school
• Explain eastern and western educational thought in relation to aims, curriculum and educative process	**Unit V: Educational thought: Aims, Curriculum and Educative Process (4)** 5.1 Eastern thought 5.2 Western thought
• Overview the trends of educational development in Nepal to identify the modern bases of education	**Unit VI: Trendsof Educational Development in Nepal (9)** 6.1 Nepal National Education Planning Commission (NNEPC) 2011 B.S 6.2 National Education System Plan (NESP) 2028 B.S 6.3 National Education Commission (NEC) 2049 B.S 6.4 School Sector Reform Plan (SSRP) to Post-SSRP (From access to quality) 6.5 Integrated approach to education (Special Needs Education, technical education)

Note: The figures in the parentheses indicate approximate teaching hours for respective units.

4 Instructional Techniques

The following modes of delivery can be used by the teacher as instructional strategies in the classroom.

4.3 General instructional strategies

- Lecture with the use of multimedia projector
- Discussion
- Question answer
- Brainstorming

4.4 Specific Instructional Techniques

The following techniques will be used for active participation of students in learning process:

Unit	Activity and Instructional Techniques
II	• Groups of students will visit educational institutions with open and distance learning (ODL) programme to identify their implementation procedures. The groups will prepare and present a brief report on implementation procedures of ODL programme in the class followed by discussion, and teachers' comments and suggestions. • Groups of students will prepare and present a comparative report on differences between skill-based and competency-based approaches to education, followed by discussion and suggestions
VI	Groups of students will study different reports ranging from NNEPC to post-SSRP to identify their milestones. Each of the groups will share the milestones (characteristic features) of these reports in the class.

5. Evaluation

5.1 Internal Evaluation 40%

Internal evaluation will be conducted by subject teacher based on following activities:

• Attendance	5
• Class participation	5
• First assignment	10
• Second assignment	10
• Third assignment	10
Total	40

5.2 Final/Semester Evaluation 60%

Examination Division, office of the Dean, Faculty of Education will conduct final examination at the end of semester.

• Objective type question (Multiple choice 10 x 1ponts)	10	
• Short answer questions (6 questions with 2 OR x 5 points)		30
• Long answer questions (2 questions with 1 OR x 10 points)		20
Total	60	

6. Recommended Books and Materials

Brubacher, J.S. (2007). *Modern philosophies of education*. New Delhi: Surjeet Publication Unit) (III

Crow, L.D & Alice Crow (1976). *Modern philosophies of education.* New Delhi: Eurasia Publishing House (Unit III)

Das, B.N. (1995). *Foundation of education: Thought and practice.* Calcutta: Kalyani Publication (Unit I, II & III)

Giddens, A. (2006). *Sociology* (5th ed.). Delhi: AITBS Publishers and Distributers (Unit IV)

Morris, I. (1972). *Sociology: An introduction.* London: George Allen & Unwin Publisher. (Unit IV)

Ornstein, A. C. & Levine, D.U. (1989). *Foundations of education* (4th ed.). USA: Houghton Mifflin Company. (Unit III)

Sen, P. (1996). *Axiomatic philosophy*. New Delhi: New Age International Publishers.(Unit III)

Ministry of Education (1971*). National education system plan (from 1971 to 1976)*. Kathmandu: Ministry of education (Unit VI)

NEC (1972). Report of national education commission. Kathmandu: Author (Unit VI)

NNEPC (1956). Education in Nepal: Report of NNEPC. Kathmandu: College of Education (Unit VI)

School sector reform plan. Kathmandu: Ministry of Education .)2009(Ministry of Education (Unit VI)

References

MoES (2003). Education in Nepal. Kathmandu : Planning Division, Statistics Section (Unit VI)

(B.S). Saikshaik suchana. Kathmandu: Ministry of Education (Unit VI 2072(Nepal Sarkar

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ICT Ed. 415: Introduction to Information Technology

Course No: ICT Ed. 415 | Nature of Course: Theoretical + Practical
Level: Bachelor | Credit Hours: 3 (2T+1P)
Semester: First | Teaching Hours: 64 (32T+32P)

1. Course Description

This course aims to provide the students with the foundation knowledge of contemporary Information Technology areas, software, applications and job skills required to enter the IT market. It covers a broad range of introductions to Information Technology concepts, operating systems, and office automation tools such as word processors, spreadsheets, databases and presentations. It also covers the telecommunication and computer network, internet, email, web and ethical issues in information technology.

2. Course Objectives

Following are the general objective of this course:

- To familiarize the students with computer and its applications in the relevant fields
- To enhance the skill of students in Information Communication and Technology (ICT) uses and operating system.
- To make the students competent in office automation system applications.
- To enable the students to use the Internet and www
- To make the students knowledgeable about telecommunication industries.
- To make the students able to use the computer system in a safe and secure way

3. Specific Objectives and Contents

Specific Objectives	Contents
• State scope and importance of IT • Differentiate a system from computer system in terms of characteristics, capabilities and limitations • Identify the types of computers and memory devices used in different generation • Identify basic components of a computer system • Distinguish between primary and secondary memories along the dimension of speed, cost and capacity.	**Unit 1 : Fundamentals of Computer (10T+2P)** 1.1 Computer system concepts, characteristics, capabilities and limitations 1.2 Generations of computers 1.3 Types of computers 1.4 Basic components of a computer system 1.4.1 Input devices 1.4.2 Output devices 1.4.3 CPU and its components 1.4.4 Memory: RAM, ROM, PROM, EPROM 1.4.5 Secondary storage device **Lab Work** • Demonstration of PC components • Prepared specification of PC system
• Explain concept of software along with its need • Differentiate main categories of computer software. • Explore the importance of programming languages in software development.	**Unit 2 : Computer Software (10T+5P)** 2.1 Types of Programming Language 2.2 Language Translators: Interpreter, Assembler, Compiler 2.3 Introduction to software 2.4 Types of software

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• Analyze the trends of new software and mobile computing. • List all the major operating system • Illustrate file allocation table • Describe window operating system • Perform the window based operating system	2.3.1 System Software 2.3.2 Utility Software 2.3.3 Application Software 2.5 Operating System and its types 2.6 Data and Database Management 2.7 Introduction to Window Operating System 2.7.1 GUI environments 2.7.2 Working with Files & Folders 2.7.3 Working with windows application programs 2.7.4 Customizing the taskbar and desktops 2.7.5 Customizing windows 2.7.6 Use of accessories. 2.7.7 Working with control panel **Lab work** • Performing 2.5 activities using window based operating system
• Identify special features commonly found in modern word processor such as editing, formatting, mail merging etc. • Execute some financial formulas in spreadsheet. • Execute presentation program. • Create and format slides. • Design and animate the slide	**Unit 3: Office Automation Software (5T+20P)** **3.1 Word processor** 3.1.1 Creating and formatting documents 3.1.2 Managing page numbers, header and footer 3.1.3 Mail Merge 3.1.4 Printing documents 3.1.5 Track Changes in document 3.1.6 Inserting citation in APA 3.1.7 Generate Table of contents **3.2 Spreadsheet Application** 3.2.1 Creating, formatting and printing worksheets. 3.2.2 Using formulas to perform different calculations 3.2.3 Creating, formatting and printing graphs **3.3 Presentation Application** 3.3.1 Creating and saving presentations 3.3.2 Inserting multimedia content, hyperlink, slide number, date and time 3.3.3 Animation and Transitions 3.3.4 Using Master Slide 3.3.5 Slide printing **Lab Work** • Performing the word processing activities using office automation software like MS Word • Performing the spread sheet activities using Office automation software like MS Excel • Performing the presentation activities using Office automation software like MS Power Point

• Describe computer network and its types • Identify topologies commonly used in networks. • Describe communication media • Illustrate different network components.	**UNIT 4: Network (8)** 4.1 Introduction of computer network 4.2 Types of Network - LAN, WAN, MAN, PAN 4.3 Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies 4.4 Communication Media - Twisted, Coaxial, and Fiber Optic 4.5 Cellular Network : 2G, 2.5G, 3G, 4G, 5G
• Explain evolution of internet and world wide web • Distinguish between internet, intranet and extranet • Demonstrate the use of web technology • Describe social media and e-mail services • Explain cloud, green and virtual computing • State different e-Services • Surf web sites, use search engine, create e-mail and use social media	**Unit 5: Internet and Web (10T+2P)** 5.1 Internet and Its Evolution 5.2 World Wide Web 5.3 Internet, Intranets and Extranet 5.4 Web Services: social media, e-Mail, video on demand 5.5 Cloud Computing 5.6 Green Computing 5.7 Autonomic Computing 5.8 e-Services • e-business • e-learning • e-Governance • e-resources **Lab work** • Surfing web sites • Using Search engine • Creating Email • Using social media
• Define computer virus and threats • Explain the ways of protecting computer virus • Identify the security and ethical issues in IT. • State computer crime • Install antivirus and scan computer system	**Unit 6 : Security and Ethical Challenges (5T+3P)** 6.1 Computer Virus and threats 6.2 Cyber Crime and its types 6.3 Security and Control 6.4 Ethical issues in Information Technology **Lab Work** • Installing antivirus and scan computer system

Note: The figures in the parentheses indicate the approximate teaching hours for the respective units.

4. Instructional Techniques

The instructional techniques for this course are divided into two groups. First group consists of general instructional techniques applicable to most of the units. The second group consists of specific instructional techniques applicable to particular units.

4.1 General Instructional Techniques

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Reading materials will be provided to students in each unit. Lecture preferably with the use of multi-media projector, demonstration, practical classes, discussion, and brain storming are used in all units.

4.2 Specific Instructional Techniques

Demonstration is an essential instructional technique for all units in this course during teaching-learning process. Specifically, demonstration with practical works will be specific instructional technique in this course. The details of suggested instructional techniques are presented below:

Units	Activities
Unit 2: For Window Operating System	• Demonstration by the teacher on different types of operation system (Working with files & folders, working with windows application programs, customizing the taskbar and desktops, customizing windows, use of accessories and working with control panel) • Individual lab work of those operation system by each student • Monitoring of students' work by reaching each student and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 3: For Word Processing	• Demonstration by the teacher on word processing - Formatting text - editing document - tab setting, - paragraph alignment - inserting table and objects - managing table of contents, page setup, proof reading the document • Lab work in pairs in a task assigned by the teacher using word processing • Monitoring of students' work by reaching each pair and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 3: For Spread Sheet	**Spread Sheet** • Demonstration by the teacher on spread sheet - Naming cell and cell range, use of formula and different types of functions - Inserting chart and objects - Renaming worksheet and workbook - Handling cell formatting such as alignment, numbers, currency, font colour, merger and centre - Applying autofill features to customise tasks - Design a bill of supermarket, mark sheet of school and college, mark ledger book, line graph, column chart, pie chart, 3D view chart using title, Axis, Gridlines, Legend, Data level and data table

	- Develop different types of tables - Use different types of functions, Formulas and subtotals. - Use colours, Font, Currency, Subtotal, Sort, Auto filter, etc. • Lab work in pairs in different tasks assigned by the teacher • Monitoring of students' work by reaching each pair and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 3: For Presentation Package	• Demonstration by the teacher on presentation package - Create different types of presentation slides - Apply a design temples - Use formatting, Alignments, Bullet, Insert picture, Organization charts, Word Art, Diagram Gallery display box, 3-D style, Rotating objected. Create/types of charts and Data sheet. Chart with title, Axis, Gridlines, Legend, Data labels and data table - Insert the different types of custom animation and movie. - Create different type of slides to use in the teaching and learning process • Individual lab work of those operation system by each student • Monitoring of students' work by reaching each student and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 6: For Data Management System	• Demonstration by the teacher about creating and maintaining the database using MS-Access. • Pair works to design a database using DDL and DML commands for creating Students and staffs profile, Telephone Directory Etc. • Monitoring of students' work by reaching each pair and assist them to complete the assignment • Presentation by students followed by peers' comments and teacher's feedback
Unit 5: For E-Mail	• Demonstration by the teacher on - creating a mailing list for communicating students or teachers - using e-mail to search to download and to send; to receive, to attach file and to send copies of e-mail documents. • Individual lab work of those operation system by each student • Monitoring of students' work by reaching each student and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 5: For Internet	• Demonstration by the teacher on searching the web site, downloading the file, uploading the files, and creating a block • Individual lab work of those operation system by each student • Monitoring of students' work by reaching each student and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback

5. Evaluation

Evaluation of students' performance is divided into parts: Internal assessment (theory and practical and internal external examinations (theory and practical). The distribution of points is given below:

Internal Assessment Theory	Internal Assessment Practical	Semester Examination (Theoretical exam)	External Practical Exam/Viva	Total Points
25 Points	15 Points	40 Points	20 Points	100 Points

***Note**: Students must pass separately in internal assessment, external practical exam and semester examination.*

5.1 Internal Assessment (25 Points) of theoretical part

Internal assessment will be conducted by subject teacher based on following criteria:

Attendance and learning Activities	5 points
First assignment (Written assignment)	5 points
Second assignment (Project work with presentation)	10 points
Third assignment/written examination	5 point
Total	25 points

5.2 Internal Assessment (15 Points) of practical part

Internal practical assessment will be conducted by subject teacher based on following criteria:

Attendance and learning Activities	5 points
Practical work/project work/lab work	10 points
Total	15 points

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5.3 Semester Examination (60 Points)

Examination Division, Dean office will conduct final examination at the end of semester.

Objective question (Multiple choice questions 10 x 1 point) 10 Points
Subjective Questions (6 questions with 2 OR x 5 marks) 30 Points

Total	40 points

5.4 Practical Exam/Viva (20 Points)

Examination Division, Office of the Dean will appoint an external examiner (ICT teachers working another campus) for conducting practical examination

Items	Points
Evaluation of Record Book	4
Project work/practical work presentation/skill test	10
Viva	6
Total	20

6. Recommended Books and References materials (including relevant published articles in national and international journals)

Alexis Leon & Mathews Leon (2009). Fundamentals of information technology, 2/e. New Delhi. Vikas Publishing House (Unit 1)

Turban, R. R. (2014). *Introduction to information technology.* John Wiley and Sons (Asia) Pvt. Ltd. (For UNIT VI to UNIT IX)

Morley, D. &. (2013). *Understanding computers today and tomorrow.* Cangage Learning.

Sinha, P. K., & Sinha, P. (2007). Computer fundamentals: Concepts, systems & applications. New Delhi: BPB Publications.

Norton, P. (2006). Peter Norton's computing fundamentals. Boston, Mass: McGraw-Hill Technology Education.

V. Rajaraman, Neeharika Adabala (2014).Fundamentals of computers 6th Edition. New Delhi: PHI

Cox, J., Lambert, J., & Frye, C. (2011). *Microsoft Office Professional 2010 step by step.* Redmond, Wash: Microsoft.

Melton, B. (Ed.). (2013). *Microsoft Office Professional 2013*. Sebastopol, Calif: O'Reilly Media.

Melton, Beth, Dodge, Mark. (2013). Microsoft Office Home and Student 2013 Step By Step. India: PHI

Patrice-Anne Rutledge. (2014),Office 2013 All-In-One Absolute Beginner's Guide ISBN:9789332539372, Pearson India

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ICT. Ed. 416: Programming Concept with C
Course No. : ICT. Ed. 416
Level: Bachelor
Semester: First

Program: **BICTE**
Nature of course: Theoretical + Practical
Credit hours: 3 (1T+2P)
Teaching hours: 80 (16T+64P)

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1. Course Description

The aim of the course is to impart knowledge of the basic concepts of procedural programming and to help the students build skills for solving problems using procedural programming paradigm. It provides the students with the basic features of the language such as data types, operators, control structure, array, functions, structure, pointer and file handling which are the common features of any programming languages. Students are more engaged in laboratory work to exaction of programing experiments rather than theoretical concept.

2. General Objectives of the Course

Following are the general objective of this course:

- To make the student knowledgeable about the procedural programming concept.
- To enable the student in implement the essential programming concepts and methods in practices.
- To explore the programming execution procedure compiler, memory and library.
- To provide the students with the skills of application to solve the real world problems.

3. Specific Objectives and Contents

Specific Objectives	Contents
• Give an introduction of programming language • Describe assembler, compiler and interpreter • State syntax and semantics • Explain programming design tools • Identify the features of good programme • Design algorithm and draw diagram of flow chart of sequence, decision making and repetition concept of programming	**Unit 1: Introduction to Programming Concept (2T+4P)** 1.1 Introduction of Programming Language 1.2 Assembler, Compiler and Interpreter 1.3 Syntax and Semantics 1.4 Programming Design Tools 1.4.1 Algorithm 1.4.2 Flow chart 1.4.3 Pseudo codes **Lab Works** • Designing algorithm and draw flow chart for sequence, decision making and repetition concept of general programming.
• Outline historical development of C programming language. • Describe basic structure of C program, character set, token and comments, variables and constants. • Apply data types and	**Unit 2: Introduction to C (5T+5P)** 2.1 History of C Language 2.2 Basic Structure of C Program 2.3 Escape Sequence 2.4 Comment 2.5 Variables and Constants 2.6 Storage classes in C

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conversion in program. • Outline input and output in relation to C • Apply operators and operands in program.	2.7 Data Types 2.8 typedef keyword 2.9 Enumeration 2.10 Format Specifiers 2.11 Type Conversion 2.12 Formatted and unformatted I/O functions 2.13 Operators 2.13.1 Arithmetic 2.13.2 Relational 2.13.3 Logical 2.13.4 Assignment 2.13.5 Conditional operator (?:) **Lab Works** • Developing basic structure of C program. • Declaring and assigning variables and constants. • Applying I/O functions • Using operators and type casting
• Write decision making problems using if, switch, goto, break and continue statements • Apply loop concept in program.	**Unit 3: Control Statements in C (4T+10P)** 4. if statement 5. switch statement 6. goto statement 7. break statement 8. continue statement 9. Loop statement 1. while 2. do-while 3. for 10. Nested loop 11. Infinite loop **Practical Works** • Apply if, switch, goto, break and continue statements • Use all types of loop statements to solve meaningful problems. • Create different patterns using nested loop
• Generate the program using 1D array and 2D array. • Solve simple computing problems using array.	**Unit 4: Array and String (5T+7P)** 4.1 Introduction to Array 4.2 Declare, access and initialize array/ array elements. 4.3 Multi-dimensional array 4.4 Application of array (searching, matrix addition, subtraction.

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- Use different string functions to manipulate strings.

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multiplication, transpose of matrix, sorting, finding greatest & smallest value in the list etc.)
4.5 Character Array and String
4.6 String Manipulation functions: strlen, strcpy, strcat, strcmp, strrev
Practical Works

- Array declaration, definition and initialization.
- Creating a single or multi-dimensional array.
- Write program to apply 2D array and 1D array
- Using string manipulation functions

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- Create a program to bind heterogeneous data
- Apply the array of structure concept to collect large no of records in structure
- Differentiate between union and structure

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Unit 5: Structure in C (3T+5P)
5.1 Concept of Structure
5.2 Initializing, accessing member of structure
5.3 Array of Structure
5.4 Nested Structure
5.5 Union
Practical Works

- Binding different types of data in structure
- Creating union data types.

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- Demonstrate pointer and address references.
- Apply pointer in array
- Identify relationship among pointer, array and structure
- Know to allocate memory dynamically

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Unit 6: Pointer (3T+7P)
6.1 Pointer variable introduction
6.2 Address of operator (&) and indirection operator (*)
6.3 Pointer Arithmetic
6.4 Relationship between 1D Array and Pointer
6.5 Dynamic Memory Allocation (malloc, calloc, realloc and free)
6.6 Pointer and Structure
Practical Works

- Using pointer to dereference.
- Illustrate the relationship between array and pointer, structure and pointer
- Allocate memory dynamically using allocation functions
- Using different string function in program.

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- Clarify the concept of functions.
- Create function with different parameter passing methods.

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Unit 7: Function (5T+5P)
7.1 Function introduction
7.2 Creating and using user defined function
7.3 Passing Parameters/arguments
7.4 Returning value from function
7.5 Pointer and Function
7.6 Arguments and return type of main function
7.7 Command line arguments
Practical Works

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	• Prototype, call and define function • Pass the parameters and return values from function • Identify and demonstrate call by reference and call by value concept in function. • Use arguments of main function to pass arguments from command line interface
• Define the concept the file handling in C. • To apply file access methods. • Applying different formatted and unformatted I/O functions	**Unit 8: File Handling (5T+5P)** 7.1 Concept of File 7.2 File access methods: Sequential and Random 7.3 File Opening Modes (r, w, a, r+, w+, a+) 7.4 Closing and Opening files 7.5 File I/O Functions: fprintf, fscanf, fgets, fputs, fgetc, fputc, getc, putc, getw, putw, fread, fwrite 7.6 Random access to file: fseek, ftell, rewind 7.7 Deleting File **Practical Works** • Creating file handling application for open, read, write and appends. • Accessing files sequentially and randomly.

Note: The figures in parenthesis indicate approximate teaching hours allotted to respective units.

4. Instructional techniques

4.1 General Instructional Techniques

Lecture preferably with the use of multi-media projector, demonstration, practical classes, discussion, and brain storming are used in all units.

4.2 Specific Instructional Techniques

Demonstration is an essential instructional technique for all units in this course during teaching-learning process. Specifically, demonstration with practical works will be specific instructional technique in this course. The details of suggested instructional techniques are presented below:

Units	Activities
Unit 1	• Demonstration by the teacher on drawing different types of algorithm, flowchart and pseudo codes • Individual lab work by each student • Monitoring of students' work by reaching each student and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Unit 2 to 7	• Demonstration by the teacher on project works mentioned in

	each unit • Lab work individually or in pairs in tasks assigned by the teacher • Monitoring of students' work by reaching each individual or pair and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's feedback
Practical Work Assignment	• Demonstration by the teacher on simple application with input process and store in notepad using C • Lab work individually or in pairs in tasks assigned by the teacher • Monitoring of students' work by reaching each individual or pair and providing feedback for improvement • Presentation by students followed by peers' comments and teacher's

5. Evaluation

Evaluation of students' performance is divided into parts: Internal assessment (theory and practical and internal external examinations (theory and practical). The distribution of points is given below:

Internal Assessment Theory	Internal Assessment Practical	Semester Examination (Theoretical exam)	External Practical Exam/Viva	Total Points
25 Points	15 Points	40 Points	20 Points	100 Points

Note: *Students must pass separately in internal assessment, external practical exam and semester examination.*

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5.1 Internal Assessment (25 Points) of theoretical part

Internal assessment will be conducted by subject teacher based on following criteria:

Attendance and learning Activities	5 points
First assignment (Written assignment)	5 points
Second assignment (Project work with presentation)	10 points
Third assignment/written examination	5 point
Total	25 points

5.2 Internal Assessment (15 Points) of practical part

Internal practical assessment will be conducted by subject teacher based on following criteria:

Attendance and learning Activities	5 points
Practical work/project work/lab work	10 points
Total	15 points

5.3 Semester Examination (60 Points)

Examination Division, Dean office will conduct final examination at the end of semester.

Objective question (Multiple choice questions 10 x 1 point)	10 Points
Subjective Questions (6 questions x 5 marks With "OR" two questions)	30 Points
Total	40 points

5.4 **Practical Exam/Viva (20 Points)**

Examination Division, Office of the Dean will appoint an external examiner (ICT teachers working another campus) for conducting practical examination

Items	Points
Evaluation of Record Book	4
Project work/practical work presentation/skill test	10
Viva	6
Total	20

6 Recommended Books and References materials (including relevant published articles in national and international journals)

Srivastava, S.K. & Srivastava, D. (2012). *C in Depth* (3rd Ed). New Delhi: BPB Publication

Schildt, H. (2017). *C: The Complete Reference* (4th Ed.). MC Graw Hill

प्राज्ञिक परिषद्को कार्यालय

कीर्तिपुर

Math Ed. 416: Mathematics-I
Level: Bachelor Degree
Code Number: Math Ed. 416
Semester: First

Nature of Course: Theory
Teaching Hours: 48
Full Marks: 100
Credit Hours: 3

1. Course Introduction

This is an integrated course of different branches of mathematics for the students at bachelor's degree students of Information and Communication Technology (BICTE). This course provides a foundation for the students to understand the basic concept of mathematics to be applicable in the field of technology. This course starts from the very fundamental matters of set and logic which help to understand various concepts of mathematics. Furthermore, it introduces real number system to make students familiar with real number system and its properties without which mathematical study is not complete. This course also enables to develop skills of drawing graphs of different types of functions that help to understand mathematics through figures. Finally, it discusses on sequence, series and logarithms through subsequent units which provide necessary concepts of basic mathematics to be applicable in the field of information and communication technology.

2. General Objectives

The general objectives of this course are as follows:

- To familiarize the students with the basic concepts and operations of set theory.
- To enhance the knowledge of the logic to test validity of the arguments.
- To acquire the concept of real number system.
- To inculcate the skills of drawing graphs of functions and inequalities.
- To develop an skill of solving quadratic equations and deal on the relation between roots
- To familiarize students with sequence and series
- .To acquire a knowledge of logarithm and its properties

3. Specific Objectives and Contents

Specific objectives to each unit and corresponding contents are described below:

Objectives	Contents
• Define sets and their types with examples. • Identify and illustrate sets and their subsets • Explain the relation of sets and subsets • Perform basic set operations with examples • Find cardinal number of sets. • Prove algebra of sets and illustrate with examples. • Represent sets in Venn-diagrams.	**Unit I Sets (6)** 1.1.Sets and their types 1.2.Relation of sets and representation 1.3Operations on sets with their properties 1.4.Cardinal number of sets 1.5.Algebra of sets 1.6. Venn diagram of sets
• Define statements and their truth values • Identify different types of connectives • Forming compound statements using	**Unit II Symbolic Logic(5)** 2.1 Statements 2.2 Logical Connectives

different types of connectives • Construct negation of different types of statements • Draw truth values of compound statements • Identify tautology and contradiction of statements • Test validity of arguments by truth tables • Test validity of arguments using Euler diagrams	2.3 Compound statements and their truth values 2.4. Algebra of statements 2.5 Equivalent statements 2.6 Conditional and bi-conditional statements 2.7 Tautology and contradictions 2.8 Arguments and the test of their validity 2.9 Testing validity by Euler diagrams
• Identify the system of natural numbers ,whole numbers and integers • Describe the axioms of Peano on natural numbers • Define rational and irrational numbers • Plot rational and irrational numbers in graph • Deal with addition ,multiplication and distributive properties of real numbers • Define order properties of real numbers • Explain density property of rational an irrational numbers • Explain absolute and non-absolute values of real numbers	**Unit III Real Number System (7)** 3.1Natural numbers ,whole numbers and integers 3.2 Peano's axioms of natural numbers 3.3 Rational and irrational numbers 3.4 Construction of rational and irrational numbers in a real line 3.5 Real numbers and its properties : • Addition property • Multiplication property • Distributive property • Density property 3..6 Absolute value of real numbers
• Define order pair ,Cartesian product and relation • Define and identify the types of mapping • Define and illustrate function its domain ,range and co-domain • Find composite and inverse of functions • Identify algebraic and transcendental functions • Draw graph of y=$\sqrt{x}$ • Define quadratic function and draw its graph • Define simultaneous equations of first degree and draw their graph	**Unit IV Functions and Graphs (6)** 4.1.Order pair , Cartesian product and relation 4.2. Mapping and its types • One to one • Onto • One to one and onto 4.3.Function : • Domain , • Range • Co-domain 4.4. Composite and inverse functions 4.5.Algebraic and transcendental functions 4.6 General form of quadratic function and its graph 4.7.Graph of function y=$\sqrt{x}$ 4.8.System of simultaneous equations and their graphs
• Distinguish between equations and inequalities • Identify linear and quadratic equations • Solve linear and quadratic equations	**Unit V Equations and Inequalities (10)** 5.1 Introduction to equation and inequalities 5.2 Roots of linear and quadratic equations

• Solve simultaneous equations of two variables of first degree • State properties of inequalities • Draw graph of inequalities of one and two variables • Find the solution set of inequalities of two variables • Solve linear programming problems by graphical method	5.3 System of first degree equations of two variables 5.4 Roots of linear inequalities of one variable 5.5 Inequalities and their properties 5.6 Graph of inequalities of one and two variables and their solution set 5.7 Solution of linear programming problems by graphical method
• Define finite and infinite sequence and series • Identify and illustrate arithmetic ,geometric and harmonic progressions • Find different types of means • Calculate sum of arithmetic and geometric series • Deal on properties of arithmetic and geometric means • Derive relation between AM,GM and HM	**Unit VI Sequences and Series (9)** 6.1 Finite and infinite sequences and series 6.2 Arithmetic, Geometric and Harmonic progressions 6.3 Arithmetic , Geometric and Harmonic means 6.4.Sum of arithmetic and geometric series 6.5 Properties of arithmetic and geometric means 6.6 Relation between means
• Define logarithm. • Prove properties of logarithm • Use properties of logarithm in solving numerical problems • Solve numerical problems related to characteristics and mantissa • Sketch the graph of exponential and logarithmic functions	**Unit VII Logarithms (5)** 7.1 Definition 7.2 Properties of logarithm 7.3Change of base 7.4 Characteristics and mantissa of logarithms 7.5 Computation with logarithms 7.6 Graph of exponential and logarithmic functions

4. Instructional Techniques

4.1General Instructional Techniques: There are various techniques of teaching and learning so as to grasp the knowledge of mathematics. Although the methods of teaching and learning may differ, the techniques to be used are lecture, discussion, problem solving, inquiry, question answer, demonstration, collaborative teaching approach and problem solving method.

4.2 Specific Instructional Techniques

The specific teaching and learning techniques (unit - wise) are listed below:

Units	Activities and Instructional Techniques	Teaching Hours (48)

Sets	Discussion and sharing experiences	6
Logic	Project work in group	5
Real Number System	Problem based learning in group	7
Functions and Graphs	Question answer and discussion in group	6
Equations and inequalities	Assignment and discussion	10
Sequence and series	Project work in group and individual and problem solving	9
Logarithm	Discussion and problem solving	5

5. Evaluation

5.1 Internal Evaluation: (40%)

Internal evaluation will be conducted by subject teacher based on the following aspects:

- Attendance 5 marks
- Participation in learning activities 5 marks
- First assignment 10 marks
- Second assignment 10 marks
- Third assignment 10 marks

Total 40 marks

5.2 External Evaluation (60%)

The examination section of Dean Office , Faculty of Education will conduct final examination at the end of the first semester .The type of questions and marks allocated for each question will be as follows :

- Objective questions (multiple choice) 10 x 1 mark = 10 marks
- Short answer questions (with two or) 6 x 5 marks = 30 marks
- Long answer questions (with 1 or) 2 x 10 marks = 20 marks

Total = 60 marks

6. Reference Books

Bajracharya P. M, Basnet G. B., & Phulara, K. R.(2012) *Fundamentals of mathematics*. Kathmandu: Buddha Academic Publishers & Distributors Pvt Ltd.

Baranov I, Bogatyrev G & Bokovner O.(1985). *Mathematics for pre-college students*, Moscow: Mir Publishers

Bajracharya P., Basnet G.B. and Phulara K.R.(2011).*Fundamentals of mathematics* . Kathmandu : Buddha Academic Publishers and Distributers Pvt Ltd

Das, B.C. & Mukherjee B.N. (1984). *Higher trigonometry*. Calcutta: UN Dhur and Sons.

Ganguli, S.M &Mukh:erjee, B.N. (1993). *Intermediate algebra*. Calcutta: UN Dhur and Sons Pvt Ltd.

Pandit, R. P (2004) *Modern mathematics*. Kathmandu: Mrs Indira Pandit shantinagar.

Sarkar, S.K. (2013). A Textbook of *Descrete mathematics*. New Delhi: S Chand & Company Ltd Ramnagar.

Shrestha, R.M.&Bajracharya, S. (2062 B.S.). *Elementary modern linear algebra*. Kathmandu: SukundaPustakBhawan.

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