

Stream:- Education;
Faculty: Information and Communication Technology Education;
Semester: First Semester;
Course Title: B Ed ICTE;

Course Description

Fundamentals of Education:

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 covers educational thought of prominent educationists including recent trends of educational development in Nepal. The course intends to develop an insight into the students in relation to bases of education focusing on interactive participation of both the students and teachers.

साधारण नेपाली

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।

General English I:

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.

Introduction to Information Technology

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 introduction of Information Technology concepts, operating system, and office automation tools such as word processor, spreadsheet, database and presentation. It also covers the telecommunication and computer network, internet, email, web and ethical issues in information technology.

Programming Concept with C

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 programme. 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 execution of programming experiments rather than theoretical concept.

Fundamentals of Mathematics (minor)

This is an integrated course of various branches of mathematics for beginner students at the undergraduate level. This course also provides mathematical foundation for the students who want to major other subjects from natural and social science areas. This course starts with the set & logic and develops through drawing of functions, solving equations & inequalities and reaches to complex number system to lay firm foundation of higher mathematics.

Course Title: **Fundamentals of Education**

Course No. : Ed.

Nature of Course: Theoretical

Level: B.Ed.

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 covers educational thought of prominent educationists including recent trends of educational development in Nepal. The course 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 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 develop students' knowledge on the sociological basis of education and identify its possible use in education.
- To acquaint the students with basic educational thought of prominent educationists.
- To make the students competent in reviewing the trends of educational development in Nepal.

3. Specific Objectives and Contents

Specific Objectives	Contents
<ul style="list-style-type: none">• Clarify the concept of education as a discipline• Describe the characteristics of discipline• Elaborate the meaning of education• Define education• Explain the forms/types of education• State the nature of education	Unit I: Education as a Discipline (8) 1.1 Meaning of education as a discipline 1.2 Characteristics of discipline 1.3 Meaning of education 1.3.1 Etymological 1.3.2 Narrow 1.3.3 Broader 1.4 Definitions of education 1.5 Major forms/types of education 1.5.1 Informal 1.5.2 Formal 1.5.3 Non-formal 1.6 Nature of education 1.6.1 Direct and indirect 1.6.2 Individual and collective 1.6.3 General and specific
<ol style="list-style-type: none">1 Explain the concept of approaches to education2 Clarify concept of open and distance education and continuing education3 State the process of open and distance learning4 Elaborate needs of continuing education and 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

5 Draw implications of skill-based and competency-based approaches to education	2.3.1 Concept 2.3.2 Needs 2.3.3 Classroom implication
<ul style="list-style-type: none"> 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 today's classroom teachers 	Unit III: Philosophical perspectives on Education(14) 1.7 Concept, branches and functions of philosophy 1.8 Relation between philosophy and education 1.9 Schools of philosophy: Philosophical premises, objectives of education, educative process, curriculum, role of teacher and student in: <ul style="list-style-type: none"> 1.9.1 Idealism 1.9.2 Naturalism 1.9.3 Realism 1.9.4 Pragmatism 3.4 Implications of schools of philosophy for classroom teachers
<ul style="list-style-type: none"> 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 Perspectives on Education (8) 4.1 Relation between sociology and education 4.2 Socialization as a base <ul style="list-style-type: none"> 4.2.1 Concept 4.2.2 Modes 4.3 Agencies of socialization <ul style="list-style-type: none"> 4.3.1 Active agencies 4.3.2 Passive agencies 4.4 Social interaction: Concept and importance 4.6 Implications of sociological bases of education for school
<ul style="list-style-type: none"> Explain eastern and western educational thought in relation to aims, curriculum and educative process 	Unit V: Educational thought: Concept and Educational Implications (4) 5.1 Eastern thought 5.2 Western thought
<ul style="list-style-type: none"> Overview the trends of educational development in Nepal to identify the modern bases of education 	Unit VI: Shaping and Reshaping 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.

4.1 General instructional strategies

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

4.2 Specific Instructional Techniques

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

Unit	Activity and Instructional Techniques
II	<ul style="list-style-type: none"> 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:

1) Attendance	5
2) Class participation	5
3) First assignment	10
4) Second assignment	10
5) 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.

1) Objective type question (Multiple choice 10 x 1pnts)	10
2) Short answer questions (6 questions x 5 points)	30
3) Long answer questions (2 questions 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)
- Ministry of Education (2009). School sector reform plan. Kathmandu: Ministry of Education (Unit VI)
- References
- MoES (2003). Education in Nepal. Kathmandu : Planning Division, Statistics Section (Unit VI)
- Nepal Sarkar (2072 B.S). Saikshaik suchana. Kathmandu: Ministry of Education (Unit VI)

पाठ्यांश शीर्षक : साधारण नेपाली -१
 पाठ्यांश प्रकृति : सैद्धान्तिक
 पाठ्यांश सङ्केत :
 तह : बि.एड.
 सेमेस्टर : पहिलो

क्रेडिट आवर : ३
 पाठ्यघन्टी : ४८

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 लेखन 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
<ul style="list-style-type: none"> • 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, • शब्दानिर्माणको प्रक्रिया बताउन, 	<p>एकाइ एक : नेपाली भाषाको परिचय, प्रयोग र शब्दभण्डार (८)</p> <p>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</p> <p>१.६ नेपाली शब्दभण्डार १.६.१ शब्द स्रोत <ul style="list-style-type: none"> • तत्सम • तद्भव • आगन्तुक शब्दहरूको प्रयोग र प्रस्तुति १.६.२ शब्दवर्गको प्रयोग र प्रस्तुति <ul style="list-style-type: none"> • नाम • सर्वनाम • विशेषण • क्रिया • नामयोगी • क्रियायोगी • संयोजक • विस्मयादिबोधक • निपात १.६.३ शब्दानिर्माण प्रक्रियाको प्रयोग र प्रस्तुति <ul style="list-style-type: none"> • सर्गपद्धति – उपसर्ग – प्रत्यय (कृत, तद्धित) • समास र द्वित्व पद्धति </p>
<ul style="list-style-type: none"> • 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, 	<p>एकाइ दुई : पठनबोध, बुँदाटिपोट, सङ्क्षेपीकरण र वाक्यतत्त्वपरक रचना (१६)</p> <p>२.१ पठनबोध 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)</p>

<ul style="list-style-type: none"> निर्देशित वाक्यकोटिलाई वाक्यान्तरण गर्न । 	<p>२.२ बुँदा टिपोट र संक्षेपीकरण</p> <p>२.२.१ बुँदाटिपोटको प्रयोग र प्रस्तुति</p> <p>२.२.२ संक्षेपीकरणको प्रयोग र प्रस्तुति</p> <p>२.३ वाक्यतत्त्वपरक रचना</p> <p>२.३.१ लिङ्ग, वचन, पुरुष र आदरका आधारमा स्वतन्त्र रचना</p> <p>२.३.२ लिङ्ग, वचन, पुरुष र आदरका आधारमा वाक्यान्तरण</p>
<ul style="list-style-type: none"> व्यावहारिक लेखन गर्न । 	<p>एकाइ तिन : व्यावहारिक लेखन (६)</p> <p>३.१ निवेदन</p> <p>३.२ भर्पाई</p> <p>३.३ मन्जुरीनामा</p> <p>३.४ तम्सुक</p> <p>३.५ जाहेरी</p> <p>३.६ कार्यालयीय टिप्पणी</p> <p>३.७ भौचर (गोश्वारा भौचर र बैङ्क भौचर)</p>
<ul style="list-style-type: none"> सूचना र तथ्यलाई अनुच्छेदमा रूपान्तरण गर्न, 	<p>एकाइ चार : सूचना र तथ्यको रूपान्तरण (६)</p> <p>४.१ तालिका तथा चित्राकृति (वृत्ताकार तथा स्तम्भाकृति) मा प्रस्तुत सूचना र तथ्यलाई अनुच्छेदमा रूपान्तरण</p> <p>४.२ रेखाचित्र तथा आरेखमा प्रस्तुत तथ्य र सूचनालाई अनुच्छेदमा रूपान्तरण</p>
<ul style="list-style-type: none"> निर्धारित साहित्यिक कृतिको सरसर्ती अध्ययन गरी प्रतिक्रियात्मक उत्तर लेख्न । 	<p>एकाइ पाँच : साहित्यिक कृतिको पठन, आस्वादन र प्रतिक्रियात्मक लेखन (१२)</p> <p>५.१ कथा</p> <p>५.१.१ विश्वेश्वरप्रसाद कोइराला : एक रात</p> <p>५.१.२ भागीरथी श्रेष्ठ : मातृत्वको चित्कार</p> <p>५.१.३ राजेन्द्र विमल : चरा बोल्छ</p> <p>५.२ कविता</p> <p>५.२.१ लक्ष्मीप्रसाद देवकोटा : यात्री</p> <p>५.२.२ माधवप्रसाद घिमिरे : एकै र मुठी धरतीको धूलो</p> <p>५.२.३ अमर गिरी : चराका गीतहरू</p> <p>५.३ निबन्ध :</p> <p>५.३.१ शङ्कर लामिछाने : जीवन : एक प्राध्यापक</p> <p>५.३.२ भैरव अर्याल : महापुरुषको सङ्गत</p> <p>५.४ एकाङ्की</p> <p>५.४.१ हृदयचन्द्रसिंह प्रधान : मरुभूमिका लेखक</p>

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 नेपाली शब्दभण्डार	सामूहिक क्रियाकलापका रूपमा शब्द स्रोत, शब्दवर्ग र शब्दनिर्माण प्रक्रियाको प्रयोग र प्रस्तुति गर्न लगाउने
दुई बुँदा टिपोट र संक्षेपीकरण तथा वाक्यतत्त्वपरक रचना	<ul style="list-style-type: none"> 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 व्यावहारिक लेखन	जोडी समूहमा निवेदन, भर्पाई, मन्जुरीनामा, जाहेरी, कार्यालयीय टिप्पणी र भौचर लेख्न लगाई कक्षामा प्रस्तुत गर्न लगाउने र शिक्षकले आवश्यकताअनुसार पृष्ठपोषण दिने,
चार सूचना र तथ्यको रूपान्तरण	सामूहिक क्रियाकलापका रूपमा तालिका, चित्राकृति, रेखाचित्र तथा आरेखमा प्रस्तुत तथ्य र सूचनालाई अनुच्छेदमा रूपान्तरण गर्न लगाई कक्षामा प्रस्तुत गराउने र शिक्षकले आवश्यकताअनुसार पृष्ठपोषण दिने,
पाँच साहित्यिक कृतिको पठन, आस्वादन र प्रतिक्रियात्मक लेखन	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 निमित्त चालिस प्रतिशत अङ्क निर्धारण गरिएको छ ।

५.२

बाह्यमूल्याङ्कन: यसका निमित्त साठी प्रतिशत अङ्क निर्धारण गरिएको छ । आन्तरिक मूल्याङ्कन कक्षा शिक्षणसँगै गरिनेछ र बाह्य मूल्याङ्कन दिन कार्यालयले निर्धारण गरेको सेमेस्टर प्रणालीअनुसार हुने छ । यसका लागि निम्नानुसारको प्रश्नयोजना रहेको छ :

आन्तरिक मूल्याङ्कन (४० प्रतिशत)

क्र.सं.	क्रियाकलाप	अङ्क
१	उपस्थिति	५
२	सिकाइ क्रियाकलापमा सहभागिता	५
३	पहिलो आन्तरिक परीक्षा	१०
४	दोस्रो आन्तरिक परीक्षा	१०
५	तेस्रो आन्तरिक परीक्षा	१०
जम्मा		४०

बाह्य परीक्षा (६० प्रतिशत)

क्र.सं.	प्रश्नको किसिम	अङ्क
१	वस्तुगत प्रश्न (१०×१ = १०)	१०
२	संक्षिप्त उत्तरात्मक प्रश्न (६×५ = ३०)	३०
३	विवेचनात्मक प्रश्न (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 ।
कोइराला, विश्वेश्वरप्रसाद (२०६०), *दोषी चस्मा*, ललितपुर : साभा प्रकाशन ।
गौतम, देवीप्रसाद र घिमिरे, कृष्णप्रसाद (सम्पा.) (२०६३), *नेपाली कथा भाग ३*, ललितपुर : साभा प्रकाशन ।
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घिमिरे, माधवप्रसाद (२०६०), *किन्नरकिन्नरी*, ललितपुर : साभा प्रकाशन ।
देवकोटा, लक्ष्मीप्रसाद (२०६२), *लक्ष्मी कविता सङ्ग्रह*, ललितपुर : साभा प्रकाशन ।
प्रधान, हृदयचन्द्रसिंह (२०६१), 'मरुभूमिका लेखक', *साभा एकाङ्की*, ललितपुर : साभा प्रकाशन ।
लामिछाने, शङ्कर (२०५८), *गोधूली संसार*, ललितपुर : साभा प्रकाशन ।
विमल, राजेन्द्र (२०६१), *आँखाका समयहरू*, काठमाडौं : साङ्गिला प्रकाशन ।

Course Title: **General English I**

Course No. : Eng. Ed

Level: B. Ed

Semester: First

Nature of the course: Theoretical

Credit hours: 3

Teaching hours: 48

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
<ul style="list-style-type: none">• 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, adverbs, 1.6. Passive and conditionals 1.7. Word formation and sentences
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• 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.	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

<ul style="list-style-type: none"> • Solve problems and puzzles 	
<ul style="list-style-type: none"> • 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, paraphrasing 4.2 Parallel writing 4.3 Completing a text 4.4 Organizing a text: sequencing instructions, ordering information, connecting ideas 4.5 Writing summaries 4.6 Writing letters: personal, official, business, job application 4.7 Writing curriculum vitae (resume) 4.8 Writing reports: events and news 4.9 Writing essays: descriptive, expository, narrative, argumentative

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

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.

4.3 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.

4.4 Specific Instructional Techniques

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

Unit I	Small group discussion for the various grammar elements, pair work 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 work 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:

1. Attendance	4 Points
2. Participation in learning activities	6 points
3. First assignment/midterm exam	10 points
4. Second assignment/assessment (1 or 2)	10 points
5. 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. Type of questions and the marks allocated for them are as follows:

1. Objective type question	(Multiple choice 10×1)	=	10 points
2. Short answer questions	(6 questions $\times 5$)	=	30 points
3. Long answer questions	(2 questions $\times 10$)	=	20 points
Total			60 points

6. Recommended Books and Reference Materials

Recommended Books

Awasthi, J. R. ,Bhattarai, G. R. & Khaniya, T. R. (eds.) (2008). *New Generation English*. Kathmandu: Vidyarthi Publication. **(For units III to IV) (Lessons from 1 – 26: page 1 - 138)**

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

Lloyd, M. and Day, J. (2011). *Active Grammar, Level 2*. Cambridge. Cambridge University Press. **(Unit I)**

Reference Materials

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

Course Title: Introduction to Information Technology

Course No. : ICT Ed 411

Nature of Course: Theoretical+Practical

Level: B.Ed.

Credit Hours: 3 (2T+1P)

Semester: First

Teaching Hours: 80 (32T+48P)

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 introduction of Information Technology concepts, operating system, and office automation tools such as word processor, spreadsheet, database and presentation. 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 application.
- To enable the students to use Internet and www
- To make the students knowledgeable about telecommunication industries.
- To make the students able to use computer system in a safe and secure way

3. Specific Objectives and Contents

Specific Objectives	Contents
<ul style="list-style-type: none"> • 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 • Illustrate configurations and specifications of PCs • State computer system architecture • Identify basic components of a computer system • Distinguish between primary and secondary memories along the dimension of speed, cost and capacity. 	<p>Unit 1 : Fundamentals of Computer (12)</p> <p>1.1 Scope of IT and its importance</p> <p>1.2 Computer system concepts, characteristics, capabilities and limitations</p> <p>1.3 Generations of computers</p> <p>1.4 Types of computers</p> <p>1.5 Personal computer (PCs)</p> <p style="padding-left: 20px;">1.5.1 Configurations of PCs</p> <p style="padding-left: 20px;">1.5.2 PCs specifications.</p> <p>1.6 Computer system architecture</p> <p>1.7 Basic components of a computer system</p> <p style="padding-left: 20px;">1.7.1 Input devices</p> <p style="padding-left: 20px;">1.7.2 Output devices</p> <p style="padding-left: 20px;">1.7.3 CPU and its components</p> <p style="padding-left: 20px;">1.7.4 Memory: RAM, ROM, EPROM, PROM</p> <p style="padding-left: 20px;">1.7.5 Secondary storage device</p> <p>Lab Work</p> <ul style="list-style-type: none"> • Demonstration of PC components • Prepared specification of PC system
<ul style="list-style-type: none"> • Explain concept of software along with its need • Differentiate main categories of computer software. • Explore the importance of programming languages in software development. • Analyze the trends of new software and mobile computing. • List all the major operating system 	<p>Unit 2 : Computer Software and Classification (8)</p> <p>2.1 Software and its need</p> <p>2.2 Types of software</p> <p style="padding-left: 20px;">2.3.1 System Software</p> <ul style="list-style-type: none"> • System, Utility Program • Programming languages • Assemblers • Compilers • Interpreter <p style="padding-left: 20px;">2.3.2 Application Software</p>

<ul style="list-style-type: none"> • Illustrate file allocation table • Describe window operating system • Perform the window based operating system 	<p>2.3 Programming languages machine, assembly, high Level, 4GL</p> <p>2.4 Trends in software</p> <p>2.5 Introduction to Disk Operating System: internal and external commands</p> <p>2.6 File Allocation Table (FAT & FAT 32)</p> <p>2.7 Introduction to Window Operating System</p> <p>2.7.1 GUI environments</p> <p>2.7.2 Working with Files & Folders</p> <p>2.7.3 Working with windows application programs</p> <p>2.7.4 Customizing the taskbar and desktops</p> <p>2.7.5 Customizing windows</p> <p>2.7.6 Use of accessories.</p> <p>2.7.7 Working with control panel</p> <p>2.8 Mobile Computing</p> <p>Lab work</p> <ul style="list-style-type: none"> • Performing 2.7 activities using window based operating system • Demonstration of the mobile operating system
<ul style="list-style-type: none"> • Execute word processor by identifying basic word processing tools • Identify special features commonly found in modern word processor such as editing, formatting, mail merging etc. • Execute some financial tools such as spreadsheet. • Differentiate the terms worksheet and spreadsheet. • List the types of data analysis tools commonly found in spreadsheet and describe their uses. • Execute presentation program. • Create and format slides. • Design and animate the slide 	<p>Unit 3: Office Automation Software (20)</p> <p>3.1 Word processor</p> <p>3.1.1 Characteristics of word processor</p> <p>3.1.2 Creating and formatting documents</p> <p>3.1.3 Managing page numbers, header and footer</p> <p>3.1.4 Proofing a document</p> <p>3.1.5 Inserting citation in APA and table of contents</p> <p>3.1.6 Inserting objects from other applications</p> <p>3.1.7 Mail merge</p> <p>3.1.8 Printing documents</p> <p>3.2 Spreadsheet Application</p> <p>3.2.1 Characteristics of Spreadsheet</p> <p>3.2.2 Creating, formatting and printing worksheets.</p> <p>3.2.3 Financial and statistical Functions in Excel</p> <p>3.2.4 Creating, formatting and printing graphs</p> <p>3.3 Presentation Application</p> <p>3.3.1 Characteristics of presentation</p> <p>3.3.2 Creating and save presentations</p> <p>3.3.3 Applying template</p> <p>3.3.4 Design slides.</p> <p>3.3.5 Animation on slide</p> <p>3.3.6 Inserting hyperlink, slide number, date and time</p> <p>3.3.7 Slide Transactions</p> <p>3.3.8 Master Slides</p> <p>3.3.9 Slides printing</p> <p>Lab Work</p> <ul style="list-style-type: none"> • 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

<ul style="list-style-type: none"> • Clarify number system in computing. • Give examples to illustrate number system and conversion • Calculate in binary 	<p>Unit 4: Number System and Their Conversion (4)</p> <p>4.1 Introduction of Number System</p> <p>4.2 Decimal, Binary, Octal, Hexadecimal Number System and Conversion</p> <p>4.2 Calculation in Binary – addition, subtraction</p>
<ul style="list-style-type: none"> • Describe computer network and its types • Identify topologies commonly used in networks. • Describe communication channels and types of network connections • Illustrate different network components. • Explain the importance of telecommunication systems in Nepal • State internet services and convergence of technologies. 	<p>UNIT 5: Telecommunication and Computer Network (8)</p> <p>5.1 Introduction of computer network</p> <p>5.2 Types of network - LAN, WAN, MAN</p> <p>5.3 Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies</p> <p>5.4 Communication Channels - Twisted, Coaxial, and Fiber Optic</p> <p>5.5 Components of LAN - Media, NIC, Bridges, HUB, Routers, Repeater and Gateways.</p> <p>5.6 Introduction to telecommunication.</p> <p>5.7 Telecommunication systems in Nepal.</p> <p>5.8 Internet services and convergence of technologies.</p>
<ul style="list-style-type: none"> • Explain database and its types • Illustrate database management system and its applications • List out the DBMS software • Create a data base with table, relationships, queries, form, report and macro. 	<p>UNIT 6 : Database Management System (14)</p> <p>6.1 Introduction to database</p> <p>6.2 Types of database</p> <p>6.3 Database Management System (DBMS)</p> <p>6.4 Application of DBMS</p> <p>Lab Work</p> <ul style="list-style-type: none"> • Creating database using DBMS software like MS Access • Creating tables with its properties • Creating relation between two or more tables • Creating form • Creating queries • Creating reports • Creating macro
<ul style="list-style-type: none"> • 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 	<p>Unit 7 : Internet Web and Emerging Technology (10)</p> <p>7.1 Internet and Its Evolution</p> <p>7.2 World Wide Web</p> <p>7.3 Internet, Intranets and Extranet</p> <p>7.4 Search Engine and Web Browser</p> <p>7.5 Social Media</p> <p>7.6 e-Mail Services</p> <p>7.7 Web 2.0</p> <p>7.8 Cloud Computing</p> <p>7.9 Green Computing</p> <p>7.10 Virtual Computing</p> <p>7.11 e-Services</p> <p>7.11.1 e-Commerce</p> <p>7.11.2 e-learning</p> <p>7.11.3 e-Health</p> <p>7.11.4 e-Government</p> <p>7.11.5 e-Library</p> <p>Lab work</p>

	<ul style="list-style-type: none"> • Surfing web sites • Using Search engine • Creating Email • Using social media
<ul style="list-style-type: none"> • Define computer virus and threats • Explain the ways of protecting computer virus • Identify the security and ethical issues in IT. • State computer crime • Define privacy and intellectual property • Install antivirus and scan computer system 	UNIT 8 : Security and Ethical Challenges (4) 8.1 Computer Virus and threats 8.2 Protection from computer virus 8.3 Security and Ethical issues in Information Technology 8.4 Computer crime 8.5 Piracy issues and intellectual property Lab Work <ul style="list-style-type: none"> • 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

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Demonstration by the teacher on word processing <ul style="list-style-type: none"> - 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

	<ul style="list-style-type: none"> • 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	<p>Spread Sheet</p> <ul style="list-style-type: none"> • Demonstration by the teacher on spread sheet <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> • Demonstration by the teacher on presentation package <ul style="list-style-type: none"> - Create different types of presentation slides - Apply a design templates - 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	<ul style="list-style-type: none"> • 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 7: For E-Mail	<ul style="list-style-type: none"> • Demonstration by the teacher on <ul style="list-style-type: none"> - 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

	<ul style="list-style-type: none"> 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 7: For Internet	<ul style="list-style-type: none"> 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 and internal and external practical examination and theoretical examinations. The distribution of points is given below:

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

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

5.1 Internal Assessment (40 Points)

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

6) Class Attendance	5 points
7) Learning activities and class performance	5 points
8) First assignment (written assignment)	10 points
9) Second assignment (Case Study/project work with presentation)	10 points
10) Terminal Examination	10 Points

Total	40 points
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5.2 Semester Examination (40 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
Short answer questions (6 questions x 5 marks)	30 Points
Total	40 points

5.3 Practical Exam/Viva (20 Points)

Examination Division, Dean Office will conduct final practical examination at the end of semester. Practical record book, practical written test, demonstration of practical activities and viva are assessment indicators.

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

Recommended Books:

Alexis Leon & Mathews Leon (2009). Fundamentals of Information Technology, 2/e. New Delhi. Vikas Publishing House (unit 1-5)

Turban, R. R. (2014). *Introduction To Information Technology*. John Wiley and Sons (Asia) Pvt. Ltd. (For unit 6 to unit 8)

References materials:

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.

Morley, D. &. (2013). *Understanding Computers Today and Tomorrow*. Cengage Learning.

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*, PHI India.

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

Course Title: Programming Concept with C
 Course No. : ICT. Ed. 412
 Level: B.Ed.
 Semester: First

Nature of course: Theoretical + Practical
 Credit hours: 3 (2T+1P)
 Teaching hours: 80 (32T+48P)

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. 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 execution of programming 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
<ul style="list-style-type: none"> • 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 	<p>Unit 1: Introduction to Programming Concept (6)</p> <p>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 1.5 Features of good programme</p> <p>Lab Works</p> <ul style="list-style-type: none"> • Designing algorithm and draw flow chart for sequence, decision making and repetition concept of general programming.
<ul style="list-style-type: none"> • Outline historical development of C programming language. • Describe basic structure of C programme, character set, token and comments, variables and constants. • Apply data types and conversion in programme. • Outline input and output in relation to C • Apply operators and operands in programme. 	<p>Unit 2: Introduction to C (10)</p> <p>2.1 History of C Programme 2.2 Basic Structure of C Programme 2.3 Character set, Token and Comments 2.4 Variables and Constants 2.5 Data Types 2.6 Type Conversion 2.7 Input and Output 2.8 Operators 2.8.1 Arithmetic 2.8.2 Relational 2.8.3 Logical 2.8.4 Increment/Decrement 2.8.5 Assignment 2.8.6 Bitwise</p> <p>Lab Works</p> <ul style="list-style-type: none"> • Developing basic structure of C programme.

	<ul style="list-style-type: none"> • Declaring and assigning variables and constants. • Applying input and output build in function • Using arithmetic operators • Giving demo of type conversion
<ul style="list-style-type: none"> • Create different selective structure programme. • Apply loop concept in programme. • Describe the interrupt concept in programme. 	<p>Unit 3: Control Structure (14)</p> <p>3.1 Selective Structure</p> <p>3.1.1 If statement</p> <p>3.1.2 If-else statement</p> <p>3.1.3 Nested if-else statement</p> <p>3.1.4 Switch statement</p> <p>3.1.5 Conditional operator (:?)</p> <p>3.2 Looping structure:</p> <p>3.2.1 While Loop</p> <p>3.2.2 Do-while loop,</p> <p>3.2.3 For loop</p> <p>3.2.4 Nested Loops</p> <p>3.2.5 Loop interrupts</p> <p>Practical Works</p> <ul style="list-style-type: none"> • User if, if-else and switch statement • Use while, do-while, for and nested loop concept.
<ul style="list-style-type: none"> • Clarify the concept of functions. • Create function with different parameter passing methods. • Apply recursion in programme. 	<p>Unit 4: Function (10)</p> <p>4.1 Function Concept</p> <p>4.2 Function prototype, call and definition</p> <p>4.3 Different ways of using function</p> <p>4.4 Call by value, call by reference</p> <p>4.5 Recursion</p> <p>Practical Works</p> <ul style="list-style-type: none"> • Prototype, call and define function • Pass the different parameter methods • Use call by reference methods using function. • Create a recursion function.
<ul style="list-style-type: none"> • Generate the programme with use of array. • Demonstrate pointer and address references. • Use string function to write program. • Apply pointer in array and string function. 	<p>Unit 5: Array, Pointer and String (10)</p> <p>5.1 Concept of array</p> <p>5.2 Array declare, access and initialization.</p> <p>5.3 Multi-dimensional array</p> <p>5.4 Concept of Pointer</p> <p>5.5 Pointer address, dereference, declaration, assignment, initialization</p> <p>5.6 Pointer Arithmetic</p> <p>5.7 Array and Pointer</p> <p>5.8 String</p> <p>5.9 String functions in C</p> <p>5.10 Pointer and String</p> <p>Practical Works</p> <ul style="list-style-type: none"> • Array declares, define, initialize. • Creating a single or multi-dimensional array. • Using pointer and demo for arithmetic function. • Using different string function in program.
<ul style="list-style-type: none"> • Create a programme to heterogeneous data types using array. • Apply the pointer in address referencing mode. 	<p>Unit 6: Structure and Union (8)</p> <p>6.1 Concept of Structure</p> <p>6.2 Initializing, accessing member of structure</p> <p>6.3 Array of structure</p> <p>6.4 Pointer to structure</p>

	6.5 Union 6.6 Different between union and structure Practical Works <ul style="list-style-type: none"> • Creating structure data types with application of loop. • Creating union data types.
<ul style="list-style-type: none"> • Define the concept the file handling in C. • To apply file access methods. • Apply to input and out formatting structures. • Apply error handling methods. 	Unit 7: Input output and File Handling (12) 7.1 Concept of File handling 7.2 File Access methods 7.3 Functions of file handling: fopen(), fclose(), fflush(), freopen() 7.4 Formatted input out 7.5 Character input output 7.6 Direct input output 7.7 Random file access 7.8 Error handling 7.9 File operation Practical Works <ul style="list-style-type: none"> • Creating file handling application for open, read, write and appends. • Handling the random access files. • Applying the text formatting function.
<ul style="list-style-type: none"> • Create application to using input, output and storage concept using C 	Unit 8: Project (10) Preparation of simple application using C with the feature of input, process, output and store in external file.

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

4.2 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: Fordrawing different types of algorithm, flowchart and pseudo codes.	<ul style="list-style-type: none"> • 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:	<ul style="list-style-type: none"> • 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
Unit 8:	<ul style="list-style-type: none"> • 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

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| • Presentation by students followed by peers' comments and teacher's |
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6. Evaluation

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

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

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

6.1 Internal Assessment (40 Points)

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

11) Class Attendance	5 points
12) Learning activities and class performance	5 points
13) First assignment (written assignment)	10 points
14) Second assignment (Case Study/project work with presentation)	10 points
15) Terminal Examination	10 Points

Total	40 points
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6.2 Semester Examination (40 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
Short answer questions (6 questions x 5 marks)	30 Points

Total	40 points
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6.3 Practical Exam/Viva (20 Points)

Examination Division, Dean Office will conduct final practical examination at the end of semester. Practical record book, practical written test, demonstration of practical activities and viva are assessment indicators.

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

Kanetkar, Y. P. (2008). *Let us C*^{8th} Ed, New Delhi, BPB Publication (Unit 1 -8)
 Baral, D.S., Baral, D. & Ghimire S. K, The secretes of C programming language. Kathmandu, BhundiPuranaPrakasan. (Unit 1-8)
 Balagurusamy, E. (2007). Programming in ANSI C. New Delhi, India: Tata McGraw-Hill.

References materials:

Raman, R. (1984). Computer programming in C, New Delhi, PHI. India (unit 1-8)
 B.S. Gottfried(2001), Schaum's Outline Series for Programming with C, Second Edition, Tata McGraw Hill Publishing Company, New Delhi
 David Griffiths (2012). Head First C. Shroff

Course Title: Fundamentals of Mathematics
 Course No.: Math Ed. 418
 Level: B. Ed (Minor Math)
 Semester: First

Nature of Course: Theory
 Credit Hours: 3
 Teaching Hours: 48

1. Course Description

This is an integrated course of various branches of mathematics for beginner students at the undergraduate level. This course also provides mathematical foundation for the students who want to major other subjects from natural and social science areas. This course starts with the set & logic and develops through drawing of functions, solving equations & inequalities and reaches to complex number system to lay firm foundation of higher mathematics.

2. The general objectives

The general objectives of this course are as follows:

- To familiarizes students with the basic concepts and operations of set theory.
- To enhance the knowledge of the logic to test validity of the arguments.
- To inculcate the skills of drawing graphs of function and inequalities.
- To let the students optimize linear programming problems by graphical method.
- To make the students understand the relation between roots of a quadratic equation and to develop skill of solving higher order polynomial equations
- .To familiarize the students with logarithm and its properties
- To make the students understand the concept of complex number and apply this concept to derive roots of complex numbers.

3. Specific Objectives and Contents

<ul style="list-style-type: none"> • Define set with examples. • Perform basic set operations. • Represent sets and operations in Venn-diagram. • Define statements and identify connectives. • Construct truth or falsity of a simple and the compound statements. • Construct validity of the arguments. 	Unit I: Sets and Logic. (8) <ul style="list-style-type: none"> • Sets and their types • Relation of sets and representation • Operations on sets with their properties • Statements with Connectives, Negation, Conditional and bi-conditional statements • Truth tables of simple and compound statements • Arguments and the test of their validity
<ul style="list-style-type: none"> • Define relation and function. • Analyze properties of functions. • Draw graphs of the functions of different forms: linear, quadratic, simultaneous equations. 	Unit II: Functions and Graphs (6) <ul style="list-style-type: none"> • Locating points in plane • Order pair, Cartesian product of two sets, relations and functions. • Types of function(1-1 onto, into, Inverse, linear, quadratic and other degree functions, Increasing and decreasing functions) • Functions and their graphs <ul style="list-style-type: none"> ○ General form of Quadratic equations and its graph ○ Graph of function $y=\sqrt{x}$ • System of homogeneous equations and their graph
<ul style="list-style-type: none"> • Differentiate with examples the equation and inequality • Solve for roots of quadratic equations • Solve equations reducible to 	Unit III: Equations and Inequalities (8) <ul style="list-style-type: none"> • Introduction to equation and inequalities • Linear and quadratic equations • Roots of linear and quadratic equations • Equations reducible to linear and quadratic

<ul style="list-style-type: none"> linear and quadratic forms Solve system of linear equations in two variables Solve inequalities of single variable Draw graph of inequalities of two variables Solve linear programming problems by graph 	<ul style="list-style-type: none"> equations System of first degree two variables equation and their solution Inequalities, their properties Roots of linear and quadratic inequalities of one variable Graph of inequalities of one and two variables and their solution set Solution of linear programming problems by graphical method
<ul style="list-style-type: none"> Define polynomial equations State properties of polynomial equations Form polynomial equations when roots are given Solve polynomial equations under certain given conditions 	Unit IV: Theory of Equations (6) <ul style="list-style-type: none"> Polynomials Polynomial equations (linear, quadratic, cubic, biquadratic etc.) General properties of polynomial equations Forming polynomial equations Solving polynomial equations with given conditions
<ul style="list-style-type: none"> Define logarithm Sketch the graph of logarithm. Prove properties of logarithm. Use logarithm concept in complex calculation. 	Unit V: Logarithm (6) <ul style="list-style-type: none"> Definition and graph of logarithm Properties of logarithm Change of base Computation with logarithm
<ul style="list-style-type: none"> To define complex numbers To prove properties of absolute value of complex numbers To find square root of a complex number To derive properties of cube roots of unity To find product and quotient of a complex numbers in trigonometric form. To derive roots of a complex number using De-Moivre's theorem. 	Unit VI: Complex Numbers (14) <ul style="list-style-type: none"> Complex number and Argand diagram Modules and argument of a complex number Algebraic properties of complex numbers conjugate and absolute value of complex number Properties of absolute values of complex numbers Square root of complex numbers Cube roots of unity Properties of cube roots of unity Trigonometric form of complex numbers Product and quotient of complex numbers in trigonometric form De-Moivre's theorem (Integral powers only) Roots of complex numbers

4. Instructional Techniques

4.1 General 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, collaborative teaching approach and problem solving method.

4.2 Specific Instructional Techniques

The specific teaching and learning techniques chapter wise are listed below:

Unit	Activity and Instructional Techniques	Teaching Hours (48)
1	Discussion and sharing experiences.	08
2	Project work in group	06
3	Problem based learning in group	08
4	Question answer and discussion in group	06
5	Assignment and discussion	04
6	Collaborative problem solving in given problems	16

5 Evaluation

5.1 Internal Evaluation 40%

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

Attendance	4 marks
Participation in learning activities	6 marks
First assignment	10 marks
Second assignment	10 marks
<u>Third assignment</u>	<u>10 marks</u>
Total	40 marks

5.2 External Evaluation (60%)

The examination section 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 type questions (multiple choice)	10 x 1 mark	=	10 marks
Short answer questions	6 x 5 marks	=	30 marks
<u>Long answer questions</u>	<u>2 x 10 marks</u>	=	<u>20 marks</u>
Total		=	60 marks

6. Recommended Book

Compendium will be developed by Dean's Office of Faculty of Education

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
- Das, B.C. & Mukherjee B.N.(1984). *Higher trigonometry*. Calcutta: UN Dhur and Sons.
- Ganguli, S.M & Mukherjee, 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 *Discrete mathematics*. New Delhi: S Chand & Company Ltd Ramnagar.
- Shrestha, R.M.&Bajracharya, S.(2062 B.S.). *Elementary modern linear algebra*. Kathmandu: Sukunda Pustak Bhawan.