**;fwf/0f g]kfnL –@**

 o; kf7\of+zn] g]kfnL efiffdf ljlzi6 af]w, cleJolQm / /rgf sf}znsf] ljsf; ug{]] nIo /fv]sf] 5 . of] kf7\of+z hDdf kfFr PsfOdf ljeflht 5 . klxnf] PsfOdf jfSotŒj, jfSofGt/0f / ;+;lQmÙ bf];|f] PsfOdf ;"rgf / tYosf] ¿kfGt/Ù t];|f] PsfOdf k|of]hgk/s af]wÙ rf}yf] PsfOdf lnlvt cleJolQm / kfFrf} PsfOdf ;flxlTos s[ltsf] k7g, cf:jfbg / k|ltlqmofTds n]vg h:tf ljifoj:t'x¿ ;dfj]z ul/Psf 5g\ . To;}n] o;df jfSotŒj, jfSofGt/0f / ;+;lQm, ;"rgf / tYosf] ¿kfGt/, k|of]hgk/s af]w tyf ljleGg k|sf/sf lnlvt cleJolQmsf ;fy} lgwf{l/t ;flxlTos s[ltx¿sf] k7g, cf:jfbg / cleJolQm Ifdtfsf] ljsf; u/fpg] ck]Iff /flvPsf] 5 .

**General English II**

This course is designed to develop their proficiency in listening, speaking, reading and writing. It also intends to equip them with knowledge of vocabulary needed for academic purpose. The course includes listening, speaking, reading and writing components. The listening, speaking and reading components deal with a wide variety of carefully selected materials. They include, among other things, informative passages on contemporary and critical issues. The writing part includes materials geared to developing various writing skills required for effective communication on matters of general and academic interests.

**Social Perspectives in Education**

This is a core course of B. Ed. This course is designed to provide students with an understanding of how social aspects interact with education. It is also designed to help students understand different social perspectives, their issues, reform movements and their associated programs. The course uses current research and sociological theory to understand Nepalese education within a global context, examine the impact of relevant government policies for schooling and to understand the interaction of sociological factors in relation to student achievements. Moreover, students will need to demonstrate an understanding of how a variety of social and cultural factors including socioeconomic status, ethnicity and cultural background, gender, geographic location and religion may impact learning and achievement of the students.

**Digital Logics**

This course provides students with the basic concepts of digital logic, organization and architecture of digital computers as foundation for more advanced computer related studies. It also intends to provides the skill on able to design simple digital devices and implement them. It covers the knowledge area of digital system, logic gates and Boolean algebra, combinational and sequential circuit design, registers, counters, memories and programmable logic devices and VHDL. Laboratory work is essential in this course.

**Object Oriented Programming with C++**

The aim of the course is to develop the skill on thinking about computation and problem solving in Object Oriented Paradigms. The course helps the students to discover the basic concepts of object-oriented programming concept such as object, class, inheritance, polymorphism, abstraction and encapsulation and apply in C++. Students are more engaged in laboratory work to exaction of programing experiments rather than theoretical concept.

**Number Theory**

This course deals with the study of the arithmetic properties of numbers. It comprises the basic techniques of arithmetic and high school mathematics in their solution. This course includes Diophantine equations, Golbach’s conjectures, Euler’s and Fermat’s theorem, Quadratic reciprocity, Pythagorean triples, Fibonacci’s numbers and Pell’s equations. Most of the chapters are independent of one another and even mathematical beginners can find it relatively easy to dip and choose at random.

**Rules and Regulations**

1. Students must wear college uniform to enter into college premises, with valid Student’s Identity card.
2. Student’s Attendance will be taken and recorded daily and minimum 80% attendance is mandatory.
3. Students must bring a leave application from their guardians whenever they are on leave.
4. Students who are irregular in classes will be warned and strict action (expel from the
5. All students must enter and leave the college on scheduled time.
6. Students are obliged to do their Class Work, Home Work and prepare a study note related to the subject regularly.
7. Students are obliged to participate in the activities conducted by the faculties and college.
8. Any damage caused to the property of JMC must be compensated by the students
9. Political activities are strictly prohibited in and around the college premises.

**kf7\of+z zLif{s M ;fwf/0f g]kfnL –@** kf7\of+z k|s[lt M ;}4flGts

kf7\of+z ;ª\s]t M g]kf= lz= $@! qm]l86 cfj/ M #

tx M la=P8= lzIf0f 306fM $\*

;]d]:6/ M bf];|f]

**!= kf7\of+zsf] kl/ro**

 o; kf7\of+zn] g]kfnL efiffdf ljlzi6 af]w, cleJolQm / /rgf sf}znsf] ljsf; ug{]] nIo /fv]sf] 5 . of] kf7\of+z hDdf kfFr PsfOdf ljeflht 5 . klxnf] PsfOdf jfSotŒj, jfSofGt/0f / ;+;lQmÙ bf];|f] PsfOdf ;"rgf / tYosf] ¿kfGt/Ù t];|f] PsfOdf k|of]hgk/s af]wÙ rf}yf] PsfOdf lnlvt cleJolQm / kfFrf} PsfOdf ;flxlTos s[ltsf] k7g, cf:jfbg / k|ltlqmofTds n]vg h:tf ljifoj:t'x¿ ;dfj]z ul/Psf 5g\ . To;}n] o;df jfSotŒj, jfSofGt/0f / ;+;lQm, ;"rgf / tYosf] ¿kfGt/, k|of]hgk/s af]w tyf ljleGg k|sf/sf lnlvt cleJolQmsf ;fy} lgwf{l/t ;flxlTos s[ltx¿sf] k7g, cf:jfbg / cleJolQm Ifdtfsf] ljsf; u/fpg] ck]Iff /flvPsf] 5 .

**@= ;fwf/0f p2]Zox¿**

 o; kf7\of+zsf ;fwf/0f p2]Zox¿ lgDgfg';f//x]sf5g\ M

* lgwf{l/t jfSotŒjsf cfwf/df :jtGq / lgb{]lzt /rgf n]Vg ;Ifd t'Nofpg],
* zAbx¿sf Jofs/l0fs / sf]zLo ;+;lQm tyf cGtjf{SofTds clGjlt kQf nufpg k|f]T;flxt u/fpg],
* cg'R5]bsf ;"rgf÷tYonfO{ tflnsf / lrqfs[ltdf ¿kfGt/ ug{ ;an agfpg],
* lgwf{l/t uBf+zaf6 k|of]hgk/s af]w k|Zgsf] pQ/ n]vgsf] cEof;df bIf t'Nofpg],
* ljleGg k|sf/sf lnlvt cleJolQm l;h{gfdf ;lqmotf a9fpg],
* lglb{i6 ;flxlTos ljwfsf] ;/;/tL k7g, cf:jfbg / k|ltlqmof n]vgsf] cEof; u/fpg] .

**#= ljlzi6 p2]Zo / kf7\oj:t'**

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| **ljlzi6 p2]Zo** | **kf7\oj:t'** |
| * jfSotŒj cg'¿k j0f{gfTds k|s[ltsf :jtGq cg'R5]b /rgf ug{,
* lgb{]lzt jfSotŒj cg'¿k jfSofGt/0f ug{,
* lgb{]lzt ;+/rgfcg';f/ jfSo ;+Zn]if0f / ljZn]if0f ug{,
* zAbx¿sf Jofs/l0fs / sf]zLo ;+;lQm klxNofpg,
* cGtjf{SofTds cyf{lGjlt kQf nufpg .
 | **PsfO Ps M jfSotŒj, jfSofGt/0f / ;+;lQm -!@\_**!=! sfn, kIf, efj, jfRo / s/0fsf cfwf/df :jtGq /rgf!=@ sfn, kIf, efj, jfRo, k|]/0ffy{, s/0f / plQm kl/jt{gsf cfwf/df jfSofGt/0f!=# jfSo ;+Zn]if0f / ljZn]if0f !=$ Jofs/l0fs ;+;lQm!=% sf]zLo ;+;lQm |
| * cg'R5]bsf ;"rgf / tYonfO{ j[Qfsf/, :tDe, /]vflrq / cf/]vdf ¿kfGt/ ug{ .
 | **PsfO b'O{ M ;"rgf / tYosf] ¿kfGt/ -^\_**@=! cg'R5]bdf k|:t't ;"rgf / tYonfO{ tflnsf jf lrqfs[lt -j[Qfsf/, :tDe\_ df ¿kfGt/@=@ cg'R5]bdf k|:t't ;"rgf / tYonfO{ /]vflrq / cf/]vdf ¿kfGt/ |
| * g]kfnL jfª\dosf ljleGg ljifoIf]q;Fu ;DalGwt af]wfTds k|Zgsf] pQ/ lbg ,
* ljleGg If]q;Fu ;DalGwt ;fdfGo tyf ljlzi6 b[i6f+z / cb[i6f+zdf cfwfl/t tYok/s, lgisif{k/s, cg'dfgk/s, t'ngfTds, JofVofTds, sfo{sf/0ffTds, af]w k|Zgsf] pQ/ n]vg ug{ .
 | **PsfO ltg M k|of]hgk/s af]w -!!\_**#=! k7gaf]w#=!=! g]kfnL jfª\dosf ljljw If]q / ljifo;Fu ;DalGwt ;fdfGo / ljlzi6 af]w k|Zgx¿sf] pQ/ n]vg / k|:t'lt * + efiff,
	+ ;flxTo,
	+ lzIff,
	+ e"uf]n,
	+ s[lif,
	+ cy{jfl0fHo,
	+ ;"rgf tyf ;~rf/,
	+ dgf]lj1fg,
	+ ;dfh,
	+ ;+:s[lt,
	+ bz{g,
	+ lj1fg tyf k|ljlw
	+ :jf:Yo
	+ jftfj/0f,
	+ sfg'g,
	+ v]ns'b

#=!=@ ;fdfGo tyf ljlzi6 k|s[ltsf b[i6f+z / cb[i6f+zdf cfwfl/t tYok/s, lgisif{k/s, cg'dfgk/s, t'ngfTds, JofVofTds, sfo{sf/0ffTds, af]w k|Zgsf] pQ/ n]vg / k|:t'lt |
| * lgb{]lzt / :jtGq cg'R5]b /rgf ug{,
* cfTdk/s / j:t'k/s lgaGw l;h{gf ug{,
* 36gf, ;df/f]x / lg/LIf0f e|d0fdf cfwfl/t k|ltj]bg n]Vg .
 | **PsfO rf/ M lnlvt cleJolQm -\*\_**$=! lgb{]lzt / :jtGq cg'R5]b /rgf $=@ cfTdk/s / j:t'k/s lgaGw n]vg $=# 36gf, ;df/f]x / lg/LIf0f e|d0fdf cfwfl/t k|ltj]bg n]vg  |
| * lgwf{l/t ;flxlTos s[ltsf] ;/;tL{ cWoog u/L k|ltlqmofTds l6Kk0fL n]Vg .
 | **PsfO kfFr M ;flxlTos s[ltsf] k7g, cf:jfbg / k|ltls|ofTds n]vg -!!\_**%=! sYff %=!=! /d]z ljsn M d]/L ;fgL elthL k|ltdf%=!=@ O:dfnL M cfh zlgjf/%=@ sljtf ÷uLt÷uhn%=@=! e"lk z]/rg M d}gjQLsf] lzvf%=@=@ xl/eQm s6'jfn M /x/%=@=# b'uf{nfn >]i7 M km"nsf] cfFvfdf ======%=# lgaGw M %=#=! nIdLk|;fb b]jsf]6f M lzIff %=#=@ zf/bf zdf{ M ;'v;Qf%=#=# o'j/fh gofF3/] M e]6f}+nf sˆo{'df%=$ pkGof;%=$=! s]zj/fh lkF8fnL M afFRg] Pp6f lhGbuL |

**$= k|fof]lus lqmofsnfk / lzIf0f k|ljlw**

k|fof]lus lqmofsnfk / lzIf0f k|ljlwnfO{ b'O{ ;d"xdf ljefhg ul/Psf] 5 M klxnf]df ;fwf/0f lzIf0f k|ljlw / bf];|f]df ljlzi6 lzIf0f k|ljlw .

**$=! ;fwf/0f lzIf0f k|ljlw**

k|To]s PsfOdf cfjZostfcg';f/ lzIfsn] ;DalGwt ljifoj:t'sf] k|:t'lt, JofVofg, 5nkmn, k|Zgf]Q/ u/fO{ ljBfyL{x¿nfO{ tT;DaGwL cEof; ug{ nufOg] 5 .

**$=@ ljlzi6 lzIf0f k|ljlw**

|  |  |
| --- | --- |
| **PsfO** | **lqmofsnfk** |
| **Ps** | * JolQmut ¿kdf sfn, kIf, efj, jfRo, s/0fsf cfwf/df :jtGq /rgf tof/ u/L sIffdf k|:t't ug{ nufpg],
* hf]8L ;d"xdf ljleGg k|sf/sf jfSox¿ lbO{ ;+Zn]if0f ug{ / ;+Zn]lift jfSox¿nfO{ ljZn]if0f ug{ nufpg],
* ;d"xcg';f/ kf7\o;fdu|Ldf cfwfl/t eO{ Jofs/l0fs ;+;lQm / sf]zLo ;+;lQmsf] pbfx/0f vf]hL sIffdf k|:t't ug{ nufpg] .
 |
| **b'O{** | * hf]8L ;d"xsf ¿kdf kf7\o ;fdu|L x]/L ljleGg k|sf/sf ;"rgf / tYonfO{ j[Qfsf/, :tDe, cf/]v / /]vflrqdf k|:t't ug{ nufpg],
 |
| **ltg** | * ;d"x cg';f/ ljleGg ljifo If]q;Fu ;DalGwt ;fdu|Ldf cfwfl/t eO{ af]w k|Zgsf] pQ/ n]Vg nufpg] / sIffdf k|:t't ug{ nufpg]
 |
| **rf/** | -s\_ lgb{]zgcg';f/ :jtGq / lgb{lzt k|s[ltsf cg'R5]b j}olQms ¿kdf n]vg u/L sIffdf k|:t't ug{ nufpg]-v\_ lbOPsf] zLif{sdf ;+/rgfcg';f/ ;d"xut k|ltj]bg n]vg u/fO{ sIffdf k|:t't ug{ nufpg]  |
| **kfFr** | * lgwf{l/t ;flxlTos s[ltsf] k7g, cf:jfbg / k|ltls|ofTds n]vgsf nflu JolStut jf ;fd"lxs cEof; ug{ nufpg] .
 |

**%= d"Nofª\sg k|lqmof**

d"Nofª\sg b'O{ k|sf/n] ul/g] 5 M

**-!\_ cfGtl/s d"Nofª\sg** M o;sf lglDt rfln; k|ltzt cª\s lgwf{/0f ul/Psf] 5 . cfGtl/s d"Nofª\sg sIff lzIf0f;Fu} ul/g] 5 . o;sf] ljt/0f lgDgfg';f/ /x]sf] 5 M

**cfGtl/s d"Nofª\sg -$) k|ltzt\_**

|  |  |
| --- | --- |
| **lqmofsnfk** | **cª\s** |
| * pkl:ylt
 | % |
| * l;sfO lqmofsnfkdf ;xeflutf
 | % |
| * klxnf] cfGtl/s k/LIff
 | !) |
| * bf];|f] cfGtl/s k/LIff
 | !) |
| * t];|f] cfGtl/s k/LIff
 | !) |
| **hDdf** | **$)** |

**-@\_ afXo d"Nofª\sg**M o;sf lglDt ;f7L k|ltzt cª\s lgwf{/0f ul/Psf] 5 . afXo d"Nofª\sg l8g sfof{non] lgwf{/0f u/]sf] ;]d]:6/ k|0ffnLcg';f/ x'g] 5 . o;sf nflu lgDgfg';f/sf] k|Zgsf nflu lgDgfg';f/sf] cª\s ljefhg ul/Psf] 5 .

**AffXo k/LIff -^) k|ltzt\_**

|  |  |
| --- | --- |
| **k|Zgsf] lsl;d** | **cª\s** |
| * ax' a}slNks k|Zg -!)×! = !)\_
 | !) |
| * ;+lIfKt pQ/fTds k|Zg -^× % = #)\_
 | #) |
| * ljj]rgfTds k|Zg -@×!) = @)\_
 | @) |
| hDdf  | ^) |

**kf7\ok':ts**

uf}td, b]jLk|;fb, e08f/L, kf/;dl0f / cf]emf, /fdgfy -@)&)\_, *:gfts g]kfnL,*sf7df8f}+ M ljBfyL{ k':ts e08f/ -PsfO !–$ sf nflu\_ .

zdf{, zf/bf -@)^#\_, *clUg:kz{,* sf7df8f}+ M Pstf k|sfzg . -PsfO % sf nflu\_

z]/rg, e"lk -@)^%\_, *3'Dg] d]rdfly cGwf] dfG5],* nlntk'/ M ;femf k|sfzg . -PsfO % sf nflu\_

>]i7, b'uf{nfn -@)^&\_, *;Gtsf] 5ftf,* sf7df8f}+ M Pstf k|sfzg . -PsfO % sf nflu\_

**;Gbe ;fdu|L**

O:dfnL -@)%\*\_, *3fd 3fdh:tf] 5}g, nlnt*k'/ M ;femf k|sfzg . -PsfO % sf nflu\_

b]jsf]6f, nIdLk|;fb -@)^\*\_, *nIdL lgaGw ;ª\u|x,* nlntk'/ M ;femf k|sfzg . -PsfO % sf nflu\_

gofF3/], o'j/fh -@)^^\_, *Psxftsf] tfnL,* sf7df8f}+ M ljBfyL{ k':ts e08f/ . -PsfO % sf nflu\_

lkF8fnL, s]zj/fh -@)^%\_, *afFRg] Pp6f lhGbuL,* nlntk'/ M ;femf k|sfzg . -PsfO % sf nflu\_ ljsn, /d]z -@)@%\_, *Pp6f a"9f] EjfOn]g cfzfj/Lsf] w"gdf,* nlntk'/ M ;femf k|sfzg . -PsfO % sf nflu\_

Course Title: **General English II**

Course No. : Eng.Ed. 421 Nature of the course: Theoretical

Level: B. Ed Credit hours: 3

Semester: Second Teaching hours: 48

1. **Course Description**

This course is designed to develop their proficiency in listening, speaking, reading and writing. It also intends to equip them with knowledge of vocabulary needed for academic purpose. The course includes listening, speaking, reading and writing components. The listening, speaking and reading components deal with a wide variety of carefully selected materials. They include, among other things, informative passages on contemporary and critical issues. The writing part includes materials geared to developing various writing skills required for effective communication on matters of general and academic interests.

1. **General Objectives**

The general objectives of this course are as follows:

* To help students listen for comprehension.
* To help students make fluent speaker.
* To familiarize students with the techniques of enriching vocabulary.
* To develop in students an ability to comprehend and interpret different kinds of written texts by exposing them to a wide variety of authentic contemporary reading materials.
* To develop in students different kinds of writing skills needed for effective communication on matters of general and academic interests.
1. **Specific Objectives and Contents**

|  |  |
| --- | --- |
| **Specific Objectives** | **Contents**  |
| * Use prior knowledge and personal experience to predict content
* Listen for main ideas and details
* Make inferences to fully understand what a speaker means
* Listen for opinion to understand book review
* Listen for reduced verb forms to understand everyday speech
* Listen for causes and effects to understand relationships among idea
* Follow a summary for several ideas
* Listen for opinion
 | **Unit I. Listening ( 10)*** 1. First impression
	2. The psychology of first impression
	3. Making inferences and listening for main ideas and details
	4. Reviewing a book
	5. Listening for causes and effects
	6. Taking notes using a T- chart
	7. Changing expectations
	8. Corporate social and personal responsibility
	9. Inferring a speakers attitude
	10. Identifying fact and opinion, amounts
	11. Advertising ethics and standards
	12. Financing a dream
	13. Understanding figurative meaning
 |
| * Make notes to prepare for a presentation or group discussion
* Take turns to make conversation go smoothly
* Imply opinions to avoid stating them too directly
* Give advice and reasons
* Ask for clarification
* Clarify what you say
* Describe a situation using details
* Ask, express and use reasons
* Make notes
* Prepare a dialogue
 | **Unit II: Speaking (8)**2.1 Taking conversation turns2.2 Asking for and giving clarification2.3 Asking for and giving reasons2.4 Leading a group discussion2.5 Giving and supporting youropinions and ideas2.6 Giving a short presentation2.7 Recapping a presentation2.8Agreeing and disagreeing2.9 Expressing emotions |
| * Read texts for general idea.
* Find specific information in the text.
* Comprehend the text for detailed understanding.
* Read and make notes of the important points.
* Draw inferences and implications from varieties of reading texts.
* Give opinions and express attitudes.
 | **Unit III: Reading (15)**3.1 Determining co-references 3.2 Matching things 3.3 Understanding instructions 3.4 Unscrambling texts and anagrams3.5 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 |
| * Write an imaginary dialogue, short sketch of a person, story
* Prepare a speech andPost card
* Write a report
* Rewrite given texts in different forms.
* Compose short and long texts in the given topics.
* Write texts maintaining coherence and cohesion.
* Interpret different types of texts.
* Explain opinions and attitudes.
* Write letters, resumes, summaries and short reports.
* Write varieties of essays.
 | **Unit IV:Writing (15)**4.1 Rewriting: Rephrasing and paraphrasing4.2 Parallel writing4.3 Completing a text4.4 Organizing a text: Sequencing instructions, ordering information, connecting ideas4.5 Writing summaries4.6 Writing letters: Personal, business, job application4.7 Writing curriculum vitae (resume)4.8 Writing reports: Events and news4.9 Writing essays: Descriptive, expository, narrative, argumentative |

1. **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.

* 1. **General Instructional Techniques**

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

* Lecture
* Discussion
* Explanation
* Illustration
* Demonstration
* Quizzes
* Guided study

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

* 1. **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 points, pair work to find out the rules of language, mini-projects to research the various grammar points in the texts. |
| Unit II | Individual practice and 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.

1. **Evaluationand Time Allotment**

The time and weighting allocated for the entire course is as follows:

**Unit weigting Time**

I Grammar 20% 20%

II Vocabulary 15% 15%

II Reading 30% 30%

III Writing 35% 35%

**5.1 Internal Evaluation 40%**

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

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

* Objective type question (Multiple choice 10 × 1 point = 10 points
* Short answer questions (6 questions × 5 points ) = 30 points
* Long answer questions (2 questions × 10) = 20 points

 **Total 60 points**

1. **Recommended Books and Reference Materials**

**Recommended Books**

Awasthi, J. R. , Bhattarai, G. R. & Rai, V. S. (eds.) (2008). *English for the New Millennium.* Kathmandu: EKTA Books. **(For units III to IV) (Selected Lessons)**

*Craven, M. and Sherman, K.D. (2011). Q: Skills for Success: 3: Listening and Speaking. Oxford: Oxford University Press.***(For units I and II)**

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

**Unit I : Legend, Lore and Education**

a. Whole Child Education b. The Five Dimensions of Education

c. The Essentials of Education

**Unit II: Short Stories**

a. The Gateman's Gift b. The Martyr

c. The Joys of Motherhood e. Grief

**Unit III: Non Fictional/ Factual Writings**

 a. I Once Was Lost b. Albert Einstein

 C. Music and Science

**Unit IV: Essays**

 a. Victory on Everest b. Laughter is the Best Medicine

 c. Liberty and Democracy

**Unit V: Interviews**

a. ImreKertesz

**Unit VI: One Act Plays**

 a. A Horseman in the Sky

**Unit VII: Memoir and Travel**

 a. The Boatman's Gift

**Unit VII: Journals**

 a. Journal Writing II

**Unit IX: Novel Extract and Motion Picture**

a. My Love Story with the City of Joys

**Unit X: Contemporary Topics**

a. Inclusive Education b. English as a World Language

 c. Diasporas and Language d. The New Electronic Media

**Unit XI: Poems**

 a. Mid- Summer Noon in the Australian Forest b. Composed upon Westminster Bridge

 c. Baby's World d. Butcher Shop

 e. If f. Before the Battle

 g. Letter from Foreign Grave h. Sonnet

**Reference**

Hornby. A.S. (2010). Oxford Advanced Learner’s Dictionary (8thEdition). Oxford: Oxford University Press.

Course title: **Social Perspectives in Education**

Course No. : Ed. 421 Nature of Course: Theoretical

Level: B.Ed. Credit hours: 3

Semester: Second Total teaching hours: 48

1. **Course Description**

This is a core course of B. Ed. This course is designed to provide students with an understanding of how social aspects interact with education. It is also designed to help students understand different social perspectives, their issues, reform movements and their associated programs. The course uses current research and sociological theory to understand Nepalese education within a global context, examine the impact of relevant government policies for schooling and to understand the interaction of sociological factors in relation to student achievements. Moreover, students will need to demonstrate an understanding of how a variety of social and cultural factors including socioeconomic status, ethnicity and cultural background, gender, geographic location and religion may impact learning and achievement of the students.

**General Objectives**

The general objectives of this course are as follows:

* To provide the students with deeper and broader understanding of social perspectives of education.
* To provide the students with in-depth knowledge on different aspects of schools and society.
* To develop the understanding of social environment and its influences on students’ achievement.
* To acquaint the students with the development programs and reforms in different periods in Nepal.
* To make the students familiar with the social policy and education in national context and for international understanding.
* To develop students’ understanding of participatory approached of different local and district level plans in Nepal.
1. **Specific Objectives and Contents**

|  |  |
| --- | --- |
| **Specific Objectives** | **Contents** |
| * + Explain the concept of social perspectives of education
	+ Discuss the contents of sociology of education
	+ Clarify the sociological perspectives in education
 | **Unit I: Sociology of Education (5)**1. Concept of social perspectives in education
2. Concept of sociology and sociology of education
3. Contents of sociology of education
4. Sociological perspectives in education
	* 1. Structural-functional
		2. Conflict
		3. Symbolic interaction
 |
| * + Explain school as a sub-system of society.
	+ Clarify meaning and importance of socialization.
	+ Describe different agencies of socialization.
	+ Describe the influence of social environment in school
 | **Unit II: The School and Society (14)*** 1. School as a sub-system of society
	2. Socialization
		1. Meaning
		2. Importance
	3. Agencies of education and socialization
		1. Family
		2. Peer Group
		3. School
		4. Community
		5. Association media
		6. Political, religious and economical groups
	4. Educational system and the environment
		1. Home and family influences on school
		2. Influence of religion on school
		3. Financing of schools
		4. Influence of political and legal institutions on schools
		5. Influence of community on school
 |
| * + Clarify different social issues related to education system of Nepal.
	+ Explain the influence of different social factors on educational access and achievement in the context of Nepal
 | Unit III Social issues and education (7)* 1. Social class and status group
	2. Caste and ethnicity
	3. Gender
	4. Language
	5. Religion
	6. Geography
	7. Influence of these factors on educational access and achievement in the context of Nepal
 |
| * + Explain the meaning of social policy in education.
	+ Clarify the concept and measures of equality and equity in education.
	+ Discuss the role of equality and equity in access and achievement in school education in Nepal.
	+ Elaborate right based approach to education with reference to human right, child right, women’s right and people with disability in Nepalese context.
	+ Explain the need of education for national integration.
	+ Explain education from international understanding
 | Unit IV: Social Policy and Education (12)* 1. Meaning of social policy in education
	2. Equality and equity in education
		1. Concept and measures
		2. Access and achievement in school education in Nepal
	3. Right based approach to education
		1. Human right
		2. Child right
		3. Women’s right
		4. Right of people with disability
	4. Provision of these rights in Nepalese context
	5. Inclusive education
	6. Education for national integration
	7. Education for international understanding
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| * Elaborate the education programs and reforms in Nepal before democratic period, in transition period, democratic reform period.
 | Unit V Education programs and reforms in different periods in Nepal (7)* 1. Pre-democratic period (before 2007 B.S.)
	2. Transition period (2007 B.S. to 2027 B.S.)
	3. Reform period (2028 to 2046 B.S.)
	4. Democratic reform period (2046 B.S. onwards)
 |
| * Review the participatory planning process of local and districts level education plans VIP, SIP, DEP.
 | **Unit VI: Critical review of participatory planning process (3)** * 1. School Improvement Plan (SIP)
	2. Village Education Plan (VEP)
	3. District Education Plan (DEP)
 |

*Note: The figures in the parentheses indicate the approximate periods for the respective units.*

1. **Instructional Techniques**

The instructional techniques for this course are divided into two groups. The 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.

* 1. **General Instructional Techniques**
* Lecture
* discussion
* Question answer
	1. **Instructional Techniques**

|  |  |
| --- | --- |
| **Unit** | **Suggested Instructional Techniques** |
| II and III | Students will be divided into groups and given different topics for group work. Groups will prepare report and share in the class. Presentation will be followed by discussion and suggestions. |
| V | Groups of students will collect different plans study them to identify strengths and weaknesses in relation to participatory process in these plans.  |

1. **Evaluation**
	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

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| --- |
| **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 x 5 points) 30
* Long answer questions (2 questions x 10 points) 20

 **Total 60**

1. **Recommended Books and References**

**Recommended Books**

Ballantine, J. H. (1997). *The sociology of education: A systematic analysis.* New Jersey: Prentice Hall. (Unit II).

Crow, & Crow, A. (1976). *Introduction to education*, New Delhi: Eurabia, Publishing House. (For units I & II)

Dash, B. N. (1995). *Foundations of education thought and practice* Calculatta: Kalyani Publication. (For units I, II & VI)

Mohanty, Jagannath (2005). *Teaching of sociology: New trends and innovations*. New Delhi: Deep & Deep Publications Pvt. Ltd. (Unit I)

Morris, V. C. et. al (1963). *Becoming an educator.* Boston: Hougton Miffin Company. (For Unit II)

Ornstein, A. C. and Levine D.U. (1989). *Foundations of Education (4thed.).* Boston: Houghton Mifflin Company. (Unit I and II).

Ottaway, A. K. C. (1964). *Education and society. and introduction to sociology of education* London: Routtedge and Kegan Paul. (For units I & II)

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**References**

Aryal, P. N. et al. (2065*). Philosophical and sociological foundations of education,* Kirtipur: Quest Publication.

Bhatia, K. K. (1983). *Principles and practices of education,* Ludhiana: Kalyani Publishers.

Bhattarai, H. N. (2063). *Foundations of education,* Kathmandu: Jupiter Publisher and Distributor.

Coombs, P. H. (1960). *The world educational crisis: system analysis* Allahabad: A. H. Wheetoer & Co. Pvt. Ltd.

Dhakal, M. P. (2063). *Philosophical and sociological foundations of education*, Kathmandu: Bidhyarthi Pustak Bhandar.

Dorothy, (1965). *Social perspective on education. The society, the student, the school*. New York: John Wiley & sons. Inc.

Faure, E. et.al. (1992), *Learning to be, the world education today and tomorrow.* Paris: UNESCO.

Hammadi, A. H. (1989*). Open University (retrospect and prospect*), Delhi: Bibliographics: Bareau.

Kneller, G. E. (1967). *Foundations of education (2nded)* Sydney: John Wiles and Sons, Inc.

Shrestha, C. B. & Basnet, S. (2063). *Philosophical and sociological foundations of education.* Kathmandu: Bhudi Puran Prakashan.

Thio, A. (1968). *An introductionto sociology.* New York: Happer & Row Publisher.

Course Title:**Digital Logics**

Course No. : ICT Ed.425 Nature of course: Theoretical + Practical

Level: B.Ed. Credit Hour: 3 (2T+1P)

Semester: Second Teaching Hour: 80 (32+48)

**Course Description**

This course provides students with the basic concepts of digital logic, organization and architecture of digital computers as foundation for more advanced computer related studies. It also intends to provides the skill on able to design simple digital devices and implement them. It covers the knowledge area of digital system, logic gates and Boolean algebra, combinational and sequential circuit design, registers, counters, memories and programmable logic devices and VHDL. Laboratory work is essential in this course.

1. **Course Objectives**

Following are the general objective of this course:

* + To make the student knowledgeable about fundamental digital logics and switching networks as well as to exposure of Boolean Algebra and its application for circuit analysis.
	+ To enable the student to identify the design concept of multilevel gates networks, flip-flops, counters and logic devices.
1. **Specific Objectives and Contents**

|  |  |
| --- | --- |
| **Specific Objectives**  | **Contents**  |
| * Differentiate between digital and analog system.
* Calculate and converse the number system digital, binary, octal and hexadecimal.
* Execute the different number system in arithmetic.
* Define codes such as ASCII, EBCDIC & UNICODE.
* Explain the error detection and error correction concept.
 | **Unit 1: Introduction to Digital System (10)** 1.1 Introduction to Analog and digital system1.2 Features of Digital Systems 1.3. Number Systems- Decimal, Binary, Octal, Hexadecimal and their inter conversions 1.4. Binary Arithmetic. complement system and subtraction using 1's, 2's, 9's, and 10's complement method1.5. Codes: BCD, XS-3, Gray code, hamming code, alphanumeric codes (ASCII, EBCDIC, UNICODE), 1.6.Error detecting and error correcting codes. ***Lab Work:*** * Practices on Number conversion between Decimal, Binary, Octal, Hexadecimal.
* Binary Arithmetic 1's, 2's, 9's, and 10's
 |
| * Explain Boolean Logic and Boolean Algebra
* Generate the logic gates with diagram, truth table and Boolean function.
* Explain Boolean Algebra and laws of Boolean Algebra
* Identify the universal gate.
 | **Unit 2: Logic Gates and Boolean Algebra (10 )** 2.1.Basic definition of Boolean Algebra 2.2.Basic Theory of Boolean Algebra, Boolean Functions, Logical operations 2.3.Logic Gates, IC Digital Logic Families. Basic gates (AND, OR, NOT gates) 2.4.Universal gates (NAND and NOR gates), other gates (XOR, XNOR gates) 2.5.Boolean identities, De Morgan Laws. ***Lab Work:*** * Verification of AND, OR, NOT, NAND, NOR, XOR, and XNOR gate.
 |
| * Simplification of Boolean algebra with the use Boolean rules
* Solve the Boolean expressions using Boolean algebra, K-Map and Quine McClusky Method
 | **Unit 3: Simplification of Boolean Functions (10)** * 1. Simplification of Boolean algebra using Boolean rules
	2. K-map method (two, three, and four Variable Maps), Don’t care conditions
	3. Canonical and standard forms, product of Sums, sum of product simplification
	4. NAND and NOR implementation
	5. Quine McClusky method.

***Lab Work:*** * Apply to simplification Boolean expression using Boolean rules.
* Apply to simplification Boolean expression using K-Map Method.
* Apply to simplification Boolean expression using Quine McClusky Method.
 |
| * Explain combinational circuits
* Implement the adder, multiplexers and de-multiplexers
* Implement the encoders and decoder
* Design combinational circuit design
* Design binary and decimal adder
 | **Unit 4: Combinational Circuit Design (12)** * 1. Half adder, full adder, half subtracter, and full subtracter.
	2. Code converters
	3. Multiplexers and demultiplexers
	4. Encoders and decoders
	5. Combinational Circuit design procedure
	6. Binary Parallel Adder
	7. Decimal Adder

***Lab Work:**** Design the adder and subtracter
* Implement logic of Mux/Demux and Encoder/Decoder
* Design the number system converter circuit
* Design Various Decision making circuits.
 |
| * Explain Sequential Logic Circuits
* Design Flip-flops
* Create flip-flop excitation table
 | **Unit 5: Sequential Circuit Design (7 )** 5.1.Flip-flops: RS, JK, D, and T, Latches5.2 Triggering of flip-flops 5.3 Master slave flip flop5.4 Flip-flop excitation table and design procedure.5.5state diagram and simple sequential circuits***Lab Work:*** * Design the different types of flip-flops.
 |
| * Explain counters and Shift Registers.
* Define electronics part of memories
* Describe digital logic families
* Analyze and design synchronous sequential circuits
* Analyze asynchronous sequential circuits
 | **Unit 6: Registers, Counters, Memories and Programmable Logic Devices (15)** 6.1 Resisters, Shift registers 6.2 Analysis of synchronous sequential circuit 6.3 Design of synchronous sequential Circuits: Counters, state diagram, state reduction, state assignment6.4 Analysis of asynchronous sequential circuit 6.5 Problems of asynchronous sequential circuit design 6.6Memories: ROM, PROM, EPROM 6.7PLD, PLA 6.8Digital Logic Families: TTL, ECL, and CMOS ***Lab Work:*** * Design any clock driven sequential circuit
* Design verify the principle of conversion of parallel data into serial.
 |
| * Define concept of VHDL
* Design simple circuits by using VHDL
 | **Unit 7: VHDL (10 )*** 1. RTL Design with VHDL
		1. Shape of VHDL
		2. Data Types
		3. Concurrent Statements
		4. Processes and Variables
		5. Simulating a Simple Design
		6. Creating Memory
		7. Finite State Machines
		8. Loops and Conditional Elaboration
		9. Attributes
		10. Functions and Procedures

**LAB Work:** * Demonstrate the different circuit in VHDL Tools
 |
| * Design real world logic circuits using VHDL or any other hardware design tools
 | **Unit 8. Project Work (6 )** |

1. **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.

* 1. **General Instructional Techniques**

Reading materials will be provided to students in each unit. Lecture, Discussion, use of multi-media projector, brain storming are used in all units.

* 1. **Specific Instructional Techniques**

Demonstration is an essential instructional technique for all units in this course during teaching learning process. Unit one and three are theoretical and numerical chapters so, they require more exercise and demonstration of principles. Use more pictures, flowchart of method, and assignment. 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:Logic Gates and Boolean Algebra  | * Verify AND, OR, NOT, NAND, NOR, XOR, and XNOR gate using physical real bread board and two input TTL ICs.
* Demonstration by the teacher on physical real device and circuitry design to demonstrate the working principle, objective and their use.
* Individual lab work of real bread board 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 4:Combinational Circuit Design  | * Design the adder and subtracter, Implement logic of Mux/Demux and Encoder/Decoder, and Design the number system converter circuit, Design Various Decision making circuits.
* 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 5:Sequential Circuit Design  | * Design RS, JD, D and T flip-flops with their excitation table and design procedure.
* Demonstrate the objective, use and practically implement the master slave flip-flop.
* Demonstrate the state diagram of any simple sequential circuit.
* 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:Registers, Counters, Memories and Programmable Logic Devices  | * Demonstrate the implement the concept, objective and real use of registers, counters, memories and PLDs.
* Design any clock driven sequential circuit, verify the principle of conversion of parallel data into serial. Design circuits like: digital clock, voting system, counting machine, storage device, traffic control system, frequency division circuits, and analyze circuits.
* Demonstrate the interfacing method with various types of logic families and integrated circuits.
* 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:VHDL  | * Explain the fundamental of VHDL programming language using class lecture method.
* VHDL language should be taught to specify the logic circuits. Instructor should illustrate how VHDL can be used to specify the desired functionality and how CAD tools provide a mechanism for developing the required circuits. Instructor should assign design projects like Adder/Subtracter, Multiplexer/Demultiplexer, Encoder/Decoder, Flip-flops, resister and counters to each individual using both methodologies: manual design and CAD tools to design logic circuits.
 |
| Project Work | * Design any real world digital logic circuit using combinational and sequential circuits.
* Use VHDL programming language.
* It is a project to be completed by individual student under the direct supervision of project supervisor.
 |

1. **Evaluation :**

|  |  |  |  |
| --- | --- | --- | --- |
| **Internal Assessment** | **External Practical Exam/Viva** | **Semester Examination** | **Total Marks** |
| 40 Points | 20 Points | 40 Points | 100 Points |

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

* 1. **Internal Evaluation (40 Points):**

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

1. Class Attendance 5 points
2. Learning activities and class performance 5 points
3. First assignment ( written assignment) 10 points
4. Second assignment (Case Study/project work with presentation ) 10 points
5. Terminals Examination 10 Points

Total 40 Points

* 1. **Semester Examination (40 Points)**

|  |
| --- |
| Examination Division, Dean office will conduct final examination at the end of semester. 1. Objective question (Multiple choice 10 questions x 1mark) 10 Points
2. Subjective answer questions (6 questions x 5 marks) 30 Points
 |
| Total 40 points  |

* 1. **External Practical Exam/Viva (20 Points):**

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

1. **Recommended Books and References materials**

**Recommended Books:**

Floyd, T. L. (2009). *Digital fundamentals* (10th ed). Upper Saddle River, N.J: Pearson/Prentice Hall.

Mano, M. M., & Kime, C. R. (2008). *Logic and computer design fundamentals* (4. ed). Upper Saddle River, NJ: Pearson Prentice Hall.

**References materials:**

Brown, S. D., & Vranesic, Z. G. (2014). *Fundamentals of digital logic with Verilog design* (Third edition). New York: McGraw-Hill Higher Education.

Rafiquzzaman, M. (2005). *Fundamentals of digital logic and microcomputer design* (5th ed). Hoboken, N.J: J. Wiley & Sons.

Mano, M. M. (2002). *Digital design* (3rd ed). Upper Saddle River, NJ: Prentice-Hall.

Course Title: **Object Oriented Programming with C++**

Course No. : ICT. Ed. 426 Nature of course: Theoretical + Practical

Level: B.Ed. Credit Hour: 3 hours (2T+1P)

Semester: Second Teaching Hour: 80hours (32+48)

1. **Course Description**

The aim of the course is to develop the skill on thinking about computation and problem solving in Object Oriented Paradigms. The course helps the students to discover the basic concepts of object-oriented programming concept such as object, class, inheritance, polymorphism, abstraction and encapsulation and apply in C++. Students are more engaged in laboratory work to exaction of programing experiments rather than theoretical concept.

1. **General Objectives**

Following are the general objective of this course:

* To acquaint the student with fundamentals object oriented paradigms and programming style in C++ programming language.
* To develop the skill on apply object oriented programming concept in programming.
* To enable a student in explore the new software development paradigms.
1. **Course Outlines:**

|  |  |
| --- | --- |
| **Specific Objectives** | **Contents** |
| * Compare procedure and object oriented programming concept
* Describe the feature of object oriented programming.
* List out the C++ compilers
* Compare coding structure of C and C++.
* Demonstrate the C++ programming styles.
 | **Unit 1: Concept of Object Oriented Programming (12)*** 1. Programming Languages and Software Crisis
	2. Procedure Vs Object Oriented Programming Language
	3. Feature of Object Oriented Programming
	4. Popular Object Oriented Programming Language and features
	5. Advantage and Disadvantage of OOPs
	6. Introduction of C++ and Compilers
	7. Programming Structure in C++
	8. Comparison on C and C++
	9. Additional Data types, token in C++
	10. Insertion and Extraction Operators

**Practical Works:*** Install the compiler of C++.
* Use Insertion and Extraction Operator.
* Compare the C and C++ Compiler and structure
 |
| * Explain the Object and Class
* Define Data member and Member function.
* Define inline member function.
* Use array in member function and objects.
* Define static and friends function.
* Explain constructor and destructors.
 | **Unit 2: Object and Class (16)** * 1. Concept of Object and Class
	2. Define Data Member and Member Function
	3. Create object and access Member Function
	4. Making outer function inline
	5. Array with in Class
	6. Array of Objects
	7. Static Data Member and Static Function
	8. Friends Functions
	9. Concept of Constructor and Destructor
	10. Empty, Parameterized and Copy constructor
	11. Define Destructor

**Practical Works:*** Create class and objects with data member and member function.
* Declare and define member function and data member with visibility.
* Create static function
* Create friend functions.
* Create different types of constructors
 |
| * Explore the concept of constructor and Destructors.
* Apply Binary operator and unary operator overloading.
* Describe data conversion methods.
 | **Unit 3: Operator Overloading (12)*** 1. Concept of Operator Overloading
	2. Defining Operator Overloading
	3. Rules of Operating Overloading
	4. Unary Operator Overloading
	5. Return types in overloading function
	6. Binary Operator Overloading
	7. Manipulation String using Operator Overloading
	8. New and Delete Operator Overloading
	9. Data Conversion

**Practical Works:*** Create unary operator overloading.
* Apply different types of operator overloading function return methods.
* Apply binary operator overloading.
* Create Data conversion methods
 |
| * Explore the concept of inheritance
* Describe the base class and access specifier .
* Apply single, multiple, multilevel inheritance.
* Use constructor in Derived class.
 | **Unit 4: Inheritance (12)*** 1. Concept of Inheritance
	2. Base and Derived Class
	3. Private, Public and Protected Specifier
	4. Derived class declaration
	5. Member function overriding
	6. Single, Multiple, multilevel and hybrid Inheritance
	7. Ambiguity problems in inheritance
	8. Constructor in Derived Class
	9. Extending operator overloading in derived class

**Practical Works:*** Create single level inheritance.
* Create multiple inheritance.
* Create multilevel inheritance.
* Check the ambiguity problems.
 |
| * Revision concept of pointer.
* Identify need of virtual function.
* Describe Virtual function.
* Describe the Pure virtual function.
* Describe the Abstract and container class
 | **Unit 5: Virtual Function and Polymorphism**  (8) * 1. Concept of Pointer
	2. Need of virtual function
	3. Definition of Virtual Function
	4. Pure Virtual function
	5. Abstract Class
	6. Container class

**Practical Works:*** Create virtual function.
* Create pure virtual function.
* Create Abstract and container class.
 |
| * Explain concept of template.
* Define function template and class template.
* Apply error handling in programming.
* Apply the different exception handling methods.
 | **Unit 6: Template and Exception Handling (8)*** 1. Concept of Template
	2. Function overloading and problems
	3. Function Template
	4. Overloading function template
	5. Class Template
	6. Derived class template
	7. Concept of error handling
	8. Basic of exception handling
	9. Exception handling mechanism: throw, catch and try

**Practical Works:*** Create and apply function template.
* Create and apply template class.
* Apply try, catch and throw methods in program.
 |
| * Describe the concept the procedure oriented paradigms.
* Describe Object oriented paradigms.
* Analysis complexity in software development.
* Describe object oriented analysis and design methods.
 | **Unit 7: Object Oriented System Development (6)** * 1. Procedure oriented paradigms
	2. Procedure oriented development Tools
	3. Object Oriented Paradigms
	4. Object-Oriented Programming as a New Paradigm
	5. Computation as Simulation
	6. Coping with Complexity’s
	7. Reusable Software
	8. Object-Oriented analysis and Design

**Practical Works:**Case study on comparison of procedure and object oriented paradigms. .  |
| * Create console application using C++.
 | **Unit 8: Project** **(6)**Develop simple Application using (6) C++ with the feature of class, object, inheritance, polymorphism and encapsulation.  |

1. **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 Techniques**

Reading materials will be provided to students in each unit. Lecture, Discussion, use of multi-media projector, 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: Concept of Object Oriented Programming | * Select and Install the different compiler of C++.
* Demonstrate the programming structure of C++.
* Compare the other program provide the assignment for understanding of objects oriented paradigms.
* 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: Object and Class | * Demonstrate class and object creation methods in C++.
* Demonstrate the methods and attributes in Class and access from objects.
* Demonstrate the different types of methods such as inline, statics and friends.
* 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: Operator Overloading | * Demonstrate the unary and binary operator overloading methods.
* Lab work in pairs in different tasks assigned by the teacher
* 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 4: Inheritance | * Demonstrate the single, multiple and multilevel inheritance and applied into C++.
* Lab work in pairs in different tasks assigned by the teacher.
* 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: Virtual Function and Polymorphism  | * Demonstrate the virtual and pure virtual functions and application.
* Demonstrate the abstract and container class.
* Lab work in pairs in different tasks assigned by the teacher.
* 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: Template and Exception Handling  | * Demonstrate the template function and class.
* Demonstrate the exception handling concept in OOPs with reference C++.
* 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 8: Project | * Develop console application applied with OOPs Concepts.
 |

1. **Evaluation :**

|  |  |  |  |
| --- | --- | --- | --- |
| **Internal Assessment** | **External Practical Exam/Viva** | **Semester Examination** | **Total Marks** |
| 40 Points | 20 Points | 40 Points | 100 Points |

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

* 1. **Internal Evaluation (40 Points):**

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

1. Class Attendance 5 points
2. Learning activities and class performance 5 points
3. First assignment ( written assignment) 10 points
4. Second assignment (Case Study/project work with presentation ) 10 points
5. Terminal Examination 10 Points

Total 40 Points

* 1. **Semester Examination (40 Points)**

|  |
| --- |
| Examination Division, Dean office will conduct final examination at the end of semester. 1. Objective question (Multiple choice 10 questions x 1mark) 10 Points
2. Subjective answer questions (6 questions x 5 marks) 30 Points

Total 40 Points |

* 1. **External Practical Exam/Viva (20 Points):**

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

1. **Recommended books and References materials (including relevant published articles in national and international journals)**

**Recommended books:**

Balagurusamy, E. (2013). *Object oriented programming with C++*. New Delhi: Tata McGraw-Hill (Unit 1-8).

BaralDayasar&BaralDiwakar(2010), Secrete of Object Orientd Programming in C++, Kathmandu, BhundipuranPrakashan (Unit 1-8).

**References materials:**

Robert Lafore(2003), Object Oriented Programming in Turbo C++, Galgotia Publications Ltd. India, 2003 (Unit 1-8).

Schildt, H. (2003). *C++: the complete reference* (4th ed). New York: McGraw-Hill.

Lippman, S.B., Lajoie. J., C++ Primer, 3rd Ed., Addison Wesley, 1998

Course Title : **Number Theory** Nature of the Course: Theoretical

Course No. : Math Ed. 425 Credit Hours: 3

Level : B Ed (Math Minor) Teaching Hours: 48

Semester : Second

# Course Description

This course deals with the study of the arithmetic properties of numbers. It comprises the basic techniques of arithmetic and high school mathematics in their solution. This course includes Diophantine equations, Golbach’s conjectures, Euler’s and Fermat’s theorem, Quadratic reciprocity, Pythagorean triples, Fibonacci’s numbers and Pell’s equations. Most of the chapters are independent of one another and even mathematical beginners can find it relatively easy to dip and choose at random.

# The General Objectives

The general objectives of this course are as follows:

* To familiarize students with the techniques of inductive methods and mathematical induction.
* To make students capable in proving and applying the divisibility theorem, Euclidean algorithm and Fundamental theorem of arithmetic.
* To make students competent in proving and applying the theory of congruence in establishing different theorems of Fermat, Wilson and little theorem.
* To enhance the skills of applying Euler’s generalization to find quadratic reciprocity.
* To make students competent in applying theorem of perfect number to establish Fermat theorem, Pythagorean triples and Fibonacci number in continued fraction.

# Specific Objectives and Contents

|  |  |
| --- | --- |
| **Specific Objectives** | **Content** |
| * Prove the validity of mathematical statements by Induction.
* Test Pascal’s rules $\left(\genfrac{}{}{0pt}{}{n}{r-1}\right)+\left(\genfrac{}{}{0pt}{}{n}{r}\right)=\left(\genfrac{}{}{0pt}{}{n+1}{r}\right)$
* Sketch the development of number theory in earlier day.
 | **Unit 1: Review on preliminaries consideration of number theory (4)*** 1. Mathematical induction
	2. Binomial theorem
	3. Early number theory
 |
| * Compute gcd by Euclidean algorithm.
* Solve the Diophantine equation with integral solution.
* Prove the fundamental theorem of arithmetic
* Verify the Goldbach’s Conjecture.
 | **Unit II: Divisibility Theory (10)*** 1. Euclidean algorithm
	2. Diophantine equation ax+by=c
	3. Fundamental theorem of arithmetic
	4. Goldbach’s conjecture
 |
| * Prove the properties of congruence.
* Validate and apply famous conjectures in number theory.
* Prove different theorems based on the theory of congruence.
 | **Unit III: Theory of Congruence and its Application (12)*** 1. Properties of congruence
	2. Linear congruence
	3. Fermat’s theorem
	4. Littletheorem
	5. Wilson’s theorem
 |
| * Identify the phi-function.
* Find the primitive roots of primes.
* Prove theorem in quadratic reciprocity.
 | **Unit IV: Euler’s Generalization and its Application (10)*** 1. Euler’s phi-function and their properties
	2. Primitives roots for primes
	3. Quadraticreciprocity
 |
| * Prove little theorem.
* State and prove Fermat’s last theorem.
* Use continued fractions to develop arbitrary rational approximation to rational and irrational numbers.
 | **Unit V: Fermat’s Conjecture and Continued Fraction (10)*** 1. Fermat numbers and little theorem
	2. Pythagorean triples and last theorem
	3. Fibonacci number and continued fractions
 |

# Instructional Techniques

# 4.1 General Instructional Techniques

Traditional way of teaching and learning of mathematics has degraded into area of rote memorization, the outcome of which leads to satisfactory formal ability but does not lead to real understanding or to greater intellectual independence. Most of mathematics can be understood and developed if it is connected to number theory. So, the goal of this course is to put the meaning back into mathematics. Discussion, lectures, project work will be general instructional technique of delivery of course.

# 4.2 Specific Instructional Technique

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| --- | --- |
| **Unit** | **Specific Activity and Instructional Techniques** |
| I | Experiences will be shared between groups |
| II | The Demonstration method will be used both giving task to students and showing their task  |
| III | Project assignment on some theorems |
| IV | Group discussion with sharing |
| V | Guided Discussion |

# Evaluation

# Internal Evaluation 40%

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

* Attendance 5 points
* Participation in learning activities 5 points
* First assignment 10 points
* Second assignment/assignment 10 points
* Third assignment/assignment 10 points

Total 40 points

# External Evaluation (Final Examination) 60%

Examination Division, Dean’s office will conduct final examination at the end of the semester.The types of questions and point allocated for each category of questions are given below:

* Objective Type Question (Multiple Choice $10×1$) 10 points
* Short Answer Question (6 Question $×$ 5 points ) 30 points
* Long AnswerQuestion (2 Question $×$ 10 points ) 20 points

Total 60 points

# Recommended Book and references

**Recommended Book**

Courant, R.; & Robbins, H. (). *What is mathematics? An elementary approach to ideas and methods.* USA: Oxford University Press.

Burton, D. M. (2002). *Elementary number theory (2nd edition).* New Delhi: Universal Book Stall.

# Reference Books

Koshy, T. (2012). *Elementary number theory with application*. New Delhi: Academic Press.