

विश्वविद्यालय

**Tribhuvan University**  
**Faculty of Education**

**Three Semester M.Ed. Science Education**  
**(First semester Curricula)**



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**Office of the Dean**  
**2078 B.S.**



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**Tribhuvan University**  
**Faculty of Education**

**Three-Semester M.Ed. in Science Education**  
**(Effective 2021)**

**Course Structure**

**Total Credit hours = 36**

Semester	Nature Course	Course Code	Course Title	Credit Hours	Total
First Semester	Core Courses	Ed. 501	Foundation of Education	3	12
		Ed. 502	Advanced Educational Psychology	3	
		Ed. 503	Curriculum Practices	3	
	Specialization	Sc. Ed. 506	Foundations of Science Education	3	
Second Semester	Core Courses	Ed. 551	Measurement and Evaluation in Education	3	12
		Ed. 552	Educational Research	3	
	Specialization	Sc. Ed. 555	Advanced Science Education	3	
	Elective Specialization (Any one)	Sc. Ed. 556	Teaching Physics	3	
		Sc. Ed. 557	Teaching Chemistry		
Sc. Ed. 558		Teaching Biology			
Sc. Ed. 559	Teaching Environment	3			
Third Semester	Specialization	Ed. 601	Teaching Practice	6	12
		Sc. Ed. 602	Thesis	6	

Eligibility: M.Sc. in Physics, Chemistry, Botany, Zoology, Microbiology, Biotechnology, Environment Science, Environmental Management

  
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### Core Courses

S.No.	Course No.	Course Title	Credit Hour	Nature
1	Ed. 501	Foundations of Education	3	Theoretical
2	Ed. 502	Advanced Educational Psychology	3	Theoretical
3	Ed. 503	Curriculum Practices	3	Theoretical

  
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**Ed. 501: Foundations of Education**

Course No: Ed. 501

Level: Three Semester M. Ed.

Semester: First

Nature of the Course: Theoretical

Credit Hours: 3

Total Hours: 48

**1.Course introduction**

'Foundations of Education' is a compulsory course designed for the first semester of the M. Ed. program (ODL mode) under Faculty of Education, T.U. The course intends to develop philosophical and sociological perspectives of education in the students. It offers the basic level philosophical beliefs prevailing in the East and West, and the indigenous belief system. The course includes the basic concepts of sociology, sociological theories, nature of society, and power dynamics.

**2.General objectives**

The general objectives of this course are:

- To enable the students to critically analyze the philosophical premises of the Vedic thought
- To enable them to search through the educational implications of the Vedic thought
- To make them able to explore philosophical premises and educational implications of Buddhism and Islamic philosophy
- To acquaint with the indigenous belief system and their educational implications.
- To enable them to assess the philosophical premises and educational implications of the Western philosophy
- To help them conceptualize the sociological perspectives of education
- To enable them to search through educational implications of sociological theories; and
- To enable them to critically analyze the nature of society and power dynamics in education

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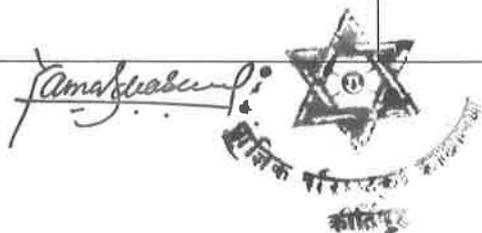
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### 3. Specific Objectives and Contents

In order to achieve the expected outcomes of the course, the specific objectives and contents are defined and organized as follows:

<b>Unit I: Philosophies and Vedic Philosophies of Education (13)</b>	
<b>Specific Objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Provide an overview of philosophy from the Eastern and the Western premises;</li> <li>• Describe the relationships between education and philosophy</li> <li>• Elaborate the philosophical premises of the Vedas, the Upanishadas and the Bhagavad Gita and reflect upon their educational implications</li> <li>• Introduce the philosophical and educational perspectives of Shad Darshan</li> <li>• Review a book related to the Eastern philosophy.</li> </ul>	<ol style="list-style-type: none"> <li>1.1. Concept of philosophy (Eastern and Western views)</li> <li>1.2. Branches/scope of philosophy (Eastern and Western perspectives)</li> <li>1.3. Purpose of philosophies</li> <li>1.4. Meaning and purpose of education</li> <li>1.5. Modes of education</li> <li>1.6. Relationship between education and philosophy</li> <li>1.7. Philosophy of the Bhagavad Gita and its educational implication</li> <li>1.8. Shad Darshan (Shankhya, Yoga, Nyaya, Vaishesika, Mimamsa and Vedanta) and their implications for education</li> <li>1.9. Related book review</li> </ol>
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Conduct a contact session and introduce the requirements</li> <li>• Provide lectures (or Power Point presentation) on the contents</li> <li>• Provide additional learning materials or sources</li> <li>• Instruct about the book review guidelines and provide a book</li> </ul>	<ul style="list-style-type: none"> <li>• Compulsorily participate in the contact session</li> <li>• Study the materials provided and discuss with the instructor</li> <li>• Identify and collect a recommended book for review</li> <li>• Study/review the book</li> <li>• Write a review report according to the guidelines provided</li> </ul>



<p>(or source of a book) related to the content area of Unit I</p> <ul style="list-style-type: none"> <li>• Evaluate the review report based on the guidelines and provide feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Present the report to the instructor and the colleagues (individually or in groups)</li> <li>• Get feedback from the facilitator and colleagues</li> <li>• Submit the report to the instructor</li> </ul>
<b>Unit II: Buddhism, Islam and Indigenous Philosophy and Education (7)</b>	
<b>Specific Objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Introduce Buddhism and its educational implications.</li> <li>• Introduce Islam and its educational implications.</li> <li>• Search through the philosophical ideas in Indigenous beliefs of Nepal and discuss their educational implications.</li> <li>• Review a research article ( on a related topic)</li> </ul>	<p>2.1. Buddhist philosophy and its implications for education</p> <p>2.2. Philosophy of the Quran and its implication for education</p> <p>2.3. Indigenous philosophies (Mundhum, Shamanism, and Lamaism) and their implications for education</p> <p>2.4. Article review</p>
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Provide lecture Power Point presentation covering the content areas</li> <li>• Provide additional resources related to the content areas</li> <li>• Give instruction on the article review guidelines</li> <li>• Suggest searching for a research article related to the philosophies discussed in this unit and drawing its educational implications</li> </ul>	<ul style="list-style-type: none"> <li>• Study provided resources</li> <li>• Search for and study additional resources independently</li> <li>• Be oriented towards article review guidelines</li> <li>• Search for collect and choose a research article for review</li> <li>• Review the article according to the guidelines provided</li> <li>• Prepare a review report and submit it to the instructor</li> </ul>

<ul style="list-style-type: none"> <li>• Give an assignment on article review follow up students' activities and evaluate the review report considering guidelines</li> <li>• Provide feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Share the review report with the colleagues</li> <li>• Obtain feedback from the facilitator and the colleagues</li> </ul>
<b>Unit III: Western Philosophy and Education (7)</b>	
<b>Specific objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Give a general introduction to the Western philosophy</li> <li>• Conceptualize the key ideas of essentialism and its educational implications</li> <li>• Elaborate the philosophical beliefs of progressivism and state its educational ideas</li> <li>• Elaborate the chief philosophical ideas of reconstructionism and present their educational implications</li> <li>• Critically analyze the philosophical view of modernism and its draw educational implications</li> <li>• Introduce the philosophical stand Points of postmodernism and discuss its educational implications</li> </ul>	<p>3.1. Introduction to the Western Philosophies</p> <p>3.2. Essentialism and its educational implication</p> <p>3.3. Progressivism and its educational implications</p> <p>3.4. Reconstructionism and its educational implication</p> <p>3.5. Modernism and its educational implication</p> <p>3.6. Postmodernism and its educational implication</p>
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Provide lecture notes or Power Point slides or other resources covering the content</li> <li>• Suggest searching and studying additional resources from websites</li> </ul>	<ul style="list-style-type: none"> <li>• Study and discuss the resources provided</li> <li>• Search in to websites for more study materials and study the materials</li> </ul>

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<ul style="list-style-type: none"> <li>• Provide the guidelines of mid-semester internal assessment</li> <li>• Construct a set of tests including 25 multiple choice items covering the contents (1-3) administer the test in the online mode.</li> <li>• Score the test in 25 full marks; divide the secured score by 5 and allocate marks,</li> <li>• Provide results and feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Be familiar with the process and requirements of the mid-semester internal assessment</li> <li>• Prepare for the assessment</li> <li>• Take the mid-term internal assessment</li> <li>• Obtain results and feedback from the facilitator</li> </ul>
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**Unit V: Sociological Perspectives on Education (10)**

Specific objectives	Contents
<ul style="list-style-type: none"> <li>• Elaborate the concept of society and sociology</li> <li>• Analyze the relationship between sociology and education</li> <li>• Clarify the sociological ideas of structural functionalism and discuss its educational implications</li> <li>• Introduce conflict theory and draw its educational implications</li> <li>• Describe the critical theory and point out its educational implications</li> <li>• Present the major sociological ideas of the symbolic interaction theory and elucidate its educational implications</li> <li>• Write an article choosing any content area from unit IV</li> </ul>	<p>4.1. Concept of society and sociology</p> <p>4.2. Relationship between sociology and education</p> <p>4.3. Sociological theories</p> <p>4.3.1. Structural functionalism and its implications for education</p> <p>4.3.2. Conflict theory and its implications for education</p> <p>4.3.3. Critical theory and its implications for education</p> <p>4.3.4. Symbolic interactionism and its implications for education</p> <p>4.4. Article writing</p>

  
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<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Role of the students</b>
<ul style="list-style-type: none"> <li>• Provide learning resources related to the contents</li> <li>• Notify the article writing guidelines</li> <li>• Assign for article writing</li> <li>• Follow up the students' article writing activities</li> <li>• Evaluate each article according to the guidelines</li> <li>• Provide feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Study the resources provided</li> <li>• Search for additional reading materials in the websites and study the materials</li> <li>• Be informed about the article writing guidelines</li> <li>• Choose a topic/problem from the contents of Unit 4</li> <li>• Collect data /text (primary or secondary sources)</li> <li>• Analyze the data</li> <li>• Write an article following the guidelines provided</li> <li>• Present the article to the facilitator and colleagues</li> <li>• Get feedback from the facilitator and colleagues</li> <li>• Finalize the article for publication</li> </ul>
<b>Unit V: Nature of Society and Power Dynamics (11)</b>	
<b>Specific objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Clarify the concepts of social stratification and explain the role of education for social stratification</li> <li>• Elucidate diversity in society and explain the ways of addressing diversity in education</li> <li>• Explain the concept and types of social mobility and elaborate the role of education for social mobility</li> <li>• Elaborate theories related to social change and transformation and</li> </ul>	<p>5.1. The nature of society</p> <p>5.1.1. Social stratification and the role of education in social stratification</p> <p>5.1.2. Diversity and education</p> <p>5.1.3. Social mobility and education</p> <p>5.2. Social inclusion/exclusion in education in the context of Nepal</p> <p>5.3. Social change and social transformation</p> <p>5.4. Politics in education</p> <p>5.4.1. Elite, authority, and discourse and educational policies</p>

<p>demonstrate the roles of education for social change and social transformation</p> <ul style="list-style-type: none"> <li>• Clarify the concept of politics in education and explore different power perspectives on education</li> <li>• Explain the role of the state in education</li> <li>• Conduct project work based on the content areas of Units IV and V</li> </ul>	<p>5.4.2. Language and resource powers and educational practices (curriculum, pedagogies, assessment, and learning)</p> <p>4.5. Role of the state in education</p> <p>5.5. Conducting project work</p>
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Provide resources for study from the content areas</li> <li>• Introduce project work and provide the guidelines for project work</li> <li>• Help the students choose, plan and implement the project</li> <li>• Evaluate the project according to the guideline and provide feedback</li> <li>• After completion of the course, construct a test including 5 creative or problem-solving type subjective items (6 marks each item, total 30 marks).</li> <li>• Administer the test in the open book mode</li> <li>• Having scored in 30 full marks, and divide score by 6 and allocate marks.</li> <li>• Inform the students about the external exam</li> </ul>	<ul style="list-style-type: none"> <li>• Study the provided and searched materials</li> <li>• Get the instructions about the project work and its guideline</li> <li>• Select a project, plan and implement it</li> <li>• Write a project work report following the guidelines</li> <li>• Get feedback</li> <li>• Be prepared for the end semester internal assessment</li> <li>• Take the test and get feedback</li> <li>• Be informed about the requirements of the external exam</li> </ul>

#### 4.Evaluation

Nature of the course	Internal Assessment	Semester Examination	Total Marks
Theory	40 Marks	60 Marks	100 Marks

*Note: The students must pass separately in internal assessment and semester examination.*

##### 4.1. Internal evaluation (40 Marks)

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

1. Attendance (Contact session and discussion forums)	5 Marks
2. Students learning engagement	5 Marks
3. Assignment I	10 Marks
4. Assignment II	10 Marks
5. Assignment III (Project work/book review/journal articles)	10 Marks
<b>Total</b>	<b>40 Marks</b>

##### 4.2.External evaluation (Final Examination) (60 Marks)

Examination Division, Office of the Dean, Faculty of Education will conduct the final examination at the end of the semester. The marks distribution will be as follows

1. Objective type questions (Multiple choice questions 10 x1 mark)	10 Marks
2. Short answer questions (6 questions with 2 'or questions' x 5 marks)	30 Marks
3. Long answer questions (2 questions with 1 'or questions' x 10 marks)	20 Marks
<b>Total</b>	<b>60 Marks</b>

##### 4.3.Guidelines for assignment activities

This course is designed not only for developing theoretical knowledge in the students but also for practical skills and abilities in the content areas. So, the course intends to develop basic

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skills of book review and article review, project work and paper writing. The following guidelines are recommended to apply the activities required:

#### 4.3.1. Book/ book chapter review

The students can select a book or book chapter related to content areas from Unit 1 individually for review. After reviewing the book/book chapter they will write a review report in about 500 words considering the following points:

- Title of the book/ chapter
- Chapters and pages
- Purpose of the book/ chapter
- Author, publisher and published year
- Subject areas covered by the book/chapter
- Subject matters presented in the book/chapter
- Language organization
- Key message of the book/chapter
- Overall quality of the book
- Relevancy of the book

The book/ book chapter report submitted will be evaluated based as: very good-4, good-3, and satisfactory-2

#### 4.3.2. Article review

The students can choose a research article of the content areas from Unit 2 published in Nepalese or international journals. They will judge the article and write a review report in about 700 words considering the following points:

- Article title, author, name of the journal, pages covered by the article, publisher and published year
- Key words (given in the article)
- Methods (method adopted by the author/s)
- Subject matter covered by the article
- Findings and discussion of the article
- Conclusion of the article
- Overall comment/opinion on the article

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- Key learning and reflection from the article (How do you feel and what is your learning from the article?)
- Referencing and citation of the article (How are citation and referencing managed?)

The article review report will be graded as: very good=4, good=3, satisfactory=2

#### 4.3.3. Article writing

The students are required to write an article based on the content areas of Unit III. They will choose the topic of article according to the suggestions from the facilitator. After collecting data/text (primary or secondary) and analyzing them the students will write an article in about 1000 words adopting the following format:

- Topic of the article
- Abstract
- Key words
- Introduction
- Purpose/ objectives of the paper
- Methods adopted
- Findings
- Conclusion
- Reference

The article submitted will be evaluated as: Very good= 5, good= 4, satisfactory= 3

#### 4.3.4. Project work

The students will carry out project work from these content areas: social stratification, social mobility, inclusion and exclusion, social transformation, politics of education in the context of school education of Nepal. They will choose, plan (what, how, where, when, why) and implement the project according to the suggestions from the facilitator. After completion of the project work the students will be required to write a project work report in about 700 words adopting the following format:

- Title of the project
- Introduction

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- Objectives
- Methods
- Findings and discussion
- Conclusion
- References

The project work/report will be evaluated as: very good= 8-10, good= 6-8, satisfactory= 5

### **Recommended books and references**

#### **Recommended books/research/journal articles**

Asgariyazdi, A. (2012). Characteristics of Islamic Philosophy. *An International Journal in Philosophy, Religion, Politics, and the Arts. Existenz 7(1)*, pp. 56-59.

Banks, J. A. (2006). *Cultural diversity and education: foundation, curriculum and teaching*. New York: Boston.

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

Ghimire, J. (2017). *Educational perspectives in the Bhagavad Gita* (Unpublished PhD dissertation). Nepal Sanskrit University, Research Centre Bhaktapur, Nepal.

Harlambos, M. (2007). *Sociology: Themes and perspectives*. New Delhi: Oxford University Press. (Part Three all units)

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

Ozmon, H. A., & Craver, A. M. (1999). *Philosophical foundations of education*. New Jersey, NJ: Prentice-Hall.

Siderits, M. (2007). *Buddhism as philosophy: An introduction*. UK: Ashgate Publishing Limited.

Tunim, M. M. (2009). *Social stratification: The forms and functions of inequality*. New Delhi: Prentice Hall.

Worthington, W.T. (2002). *Philosophy of education: The pulse of wisdom of philosophy*.

#### **References**

Adams, B.N. & Sydie, R.A. (2003). *Sociological theory*. New Delhi: Vistaar Publications



- Charlu, K. (1971). *The educational philosophy of the Bhagavad Gita*. Unpublished Ph. D. thesis submitted to the Sardar Patel University. Vallabh Vidyanagar. Gujarat.
- Fatiha, S. (2004). *Commentary on the Holy Quran (Vol.1)*. M. Z. Khan (trans.). Islamabad. Islam International Publications Limited.
- Kneller, G. F. (1971). *Foundations of education*. John Wiley & Sons.
- Nodding (1998). *Philosophy of education: Dimensions of philosophy series*. Prentice Hall
- Pojman, L. P. (2003). *Classics of philosophy (2<sup>nd</sup> ed.)*. New York: Oxford University Press
- Rao, C.N. (2010). *Sociology: Principles of sociology with an introduction to social thought*. India: Chand and Company Limited

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**Ed. 502: Advanced Educational Psychology**

Course No.: Ed. 502

Nature of the course: Theoretical

Level: Three Semester M. Ed.

Credit hours: 3

Semester: First

Teaching hours: 48

**1. Course Description**

This course is prescribed as a compulsory course for the online Master's degree students under the Faculty of Education, TU. The course subsumes four units focusing on the theoretical and practical aspects of educational psychology in light of classroom implications. It aims to provide the students with professional knowledge, skills, and understanding of developmental psychology and learning theories, and their educational implications. It focuses on the concept, meaning and understanding of psychology, and its need for teachers from the pedagogical perspectives. From the developmental perspective, the course mainly emphasizes adolescence concerning the growth and development, and problems and challenges that arising during adolescence.

Equally, the course deals with the psychology of learning, which seeks out how a child learns in his/her everyday life, judged from different thoughts of learning theories. Thus, the course includes the learning theories and paradigms ranging from behaviorism to constructivism and their classroom implications.

**2. General Objectives**

The general objectives of this course are as follows:

- To help the students conceptualize the meaning and understanding of psychology;
- To familiarize them with educational psychology and its importance for school teachers;
- To enable them to learn to critically reflect on the specific features, stages, changes and development of adolescence;
- To help students conceptualize different schools of learning theories and their classroom implications; and
- To enable them to describe cognitive processes such as concept formation, thinking and problem solving.

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### 3. Specific Objectives and Contents

<b>Unit I: Concept and Meaning of Educational Psychology (8)</b>	
<b>Specific Objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Describe the concept of human development;</li> <li>• Identify the issues in human development;</li> <li>• Assess the need for educational psychology for teachers</li> <li>• Get acquainted with different methods of studying human development;</li> <li>• Explain the behaviorist, psychoanalytic, and cognitive approaches to human development</li> </ul>	<p><b>1. Concept and Meaning</b></p> <p>1.1. Concept and meaning of psychology</p> <p>1.2. Concept and meaning of educational psychology</p> <p>1.3. Needs for educational psychology in education (Theory, Pedagogy, Practice)</p> <p>1.4. Methods and study of human development (Case study, longitudinal, cross-sectional, observational)</p> <p>1.5 Concept of human development</p> <p>1.6 Issues in human development</p> <p style="padding-left: 20px;">1.2.1 Nature vs. nurture</p> <p style="padding-left: 20px;">1.2.2 Maturation vs. learning</p> <p>1.7 Approaches to human development</p> <p style="padding-left: 20px;">1.3.1 Behaviorist approach: B. F Skinner</p> <p style="padding-left: 20px;">1.3.2 Psycho-analytical approach: Sigmund Freud</p> <p style="padding-left: 20px;">1.3.3 Cognitive approach: Jean Piaget</p>
<b>Learning Engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Upload learning resources in the form of papers, books, video/URL link, recorded video, and Power Point slides,</li> <li>• Develop quizzes, discussion questions, objective questions and upload them on the moodle,</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) uploaded on the moodle,</li> <li>• Take part in the discussion and discussion blog in 6 different questions,</li> <li>• Attempt the quizzes, short-answer questions, and objective type questions.</li> </ul>

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<ul style="list-style-type: none"> <li>• Schedule time for interactive learning, and discussion on the moodle through BBB.</li> <li>• Provide themes to the students and arrange their BBB presentation</li> <li>• Make comments on the assignments and provide feedback.</li> </ul>	<ul style="list-style-type: none"> <li>• Students' BBB (Big Blue Button) presentation (10 minutes for each) as on the themes provided</li> <li>• Engage in responding to Assignment I</li> </ul>
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*Assignment I: To assess teachers' understanding and their need for psychology, prepare five or six questions and collect information from them. For this, visit the nearby schools and ask the questions to the teachers about how they have understood and applied psychological principles and methods to their classroom teaching. Prepare a report based on the information you have collected. (Word limit: 1500-2000, Times New Roman, 1.5 space.)*

### Unit II: Understanding Adolescence (12)

Specific objectives	Contents
<ul style="list-style-type: none"> <li>• Describe the physical, cognitive, emotional, social and moral development in adolescence and its educational implications;</li> <li>• Get acquainted with delinquency as a result of drug abuse, sexual perversion, and anti-social activities during adolescence;</li> <li>• Assess the as impact of ICT and the mass media on psychological and physical development during adolescence;</li> <li>• Describe the pattern of moral development in adolescence;</li> <li>• Discuss the concepts of student counseling and support for mitigating delinquency and negative impact of ICTs and the mass media.</li> </ul>	<p><b>2. Understanding Adolescence</b></p> <p>2.1. Physical development and its educational implication</p> <p>21. Cognitive development in adolescence and its educational implications</p> <p>2.2. Emotional development in adolescence and its educational implication</p> <p>2.3 Social development in adolescence and its educational implication</p> <p>2.4 Moral development in adolescence and its educational implication</p> <p>2.4.1 Kohlberg theory of moral development</p> <p>2.5 Delinquency: Drug abuse, sexual perversion, anti-social activities</p> <p>2.6 ICTs and mass media: Impact on psychological and physical development of the adolescent</p> <p>2,6.1. Educational implications</p>

	2.7 Student counseling and support: Group counseling, individual counseling (delinquency and negative impacts of ICTs and mass media on their), career counseling.
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Upload learning resources in the form of papers, books, video/URL link, recorded video, and Power Point slides,</li> <li>• Develop quizzes, discussion questions, objectives questions and upload them on the moodle,</li> <li>• Schedule time for interactive learning, discussion and chat on the moodle through BBB.</li> <li>• Provide themes to the students and arranges for the students' BBB presentation</li> <li>• Make comments on the assignments and provide feedback.</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) uploaded on the moodle,</li> <li>• Take part in the discussion and discussion blog in 5 different questions,</li> <li>• Attempt the quizzes, short-answer questions, and objective type questions.</li> <li>• Give BBB (Big Blue Button) presentations (10 minutes for each) on the themes provided</li> <li>• Engage in Assignment II</li> </ul>
<p><i>Assignment II: Prepare five or six questions focusing on the problems and challenges faced by adolescents. Visit schools and ask the questions to the students studying in grade 11 and 12. Based on the questions, prepare a report. (Words limit: 1500, Times New Roman, 1.5 space.)</i></p>	
<b>Unit III: Learning Theories (16)</b>	
<b>Specific objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Identity and explain the basic concept of behaviorism and its implications for classroom teaching;</li> </ul>	<p><b>3. Learning theories</b></p> <p>3.1. Behaviorism and its educational implications</p> <p>3.2. Cognitivism and its educational implications</p> <p>3.4. Social theories and their educational implications</p>

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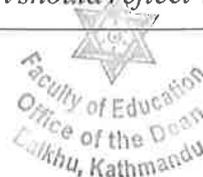
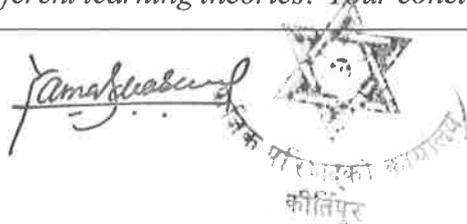
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<ul style="list-style-type: none"> <li>• Conceptualize cognitivism and draw its educational implications.</li> <li>• Be familiar with social theories and their educational implications;</li> <li>• Conceptualize constructivism and connectivism and derive their implications.</li> </ul>	<p>3.3. Constructivism and its educational implications</p> <p>3.5. Connectivism and its educational implications</p>
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### Learning Engagement

Roles of the facilitator	Roles of the students
<ul style="list-style-type: none"> <li>• Upload learning resources in the form of papers, books, video/URL link, recorded video, and Power Point slides,</li> <li>• Develop quizzes, discussion questions, objective questions and upload them on the moodle,</li> <li>• Schedule time for interactive learning, discussion and chat on the moodle through BBB.</li> <li>• Provide themes to the students and arrange the students' BBB presentations every weekend</li> <li>• Make comments on the assignments and provide feedback.</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) uploaded on the moodle,</li> <li>• Take part in the discussion and discussion blog in 10 different questions,</li> <li>• Attempt the quizzes, short-answer questions, and objective type questions,</li> <li>• Take part in the students' BBB (Big Blue Button) presentations (10 minutes for each) on the themes provided</li> <li>• Do assignment III</li> </ul>

*Assignment III: As a group work, visit schools and observe related to your specialization areas on consent of the respective teachers. Record the class activities focusing on the methods and strategies they used while teaching. Prepare a report based on the data. Particularly explore: What teaching methods did the teachers use? How were these teaching methods related to different learning theories? Your conclusion should reflect which learning*



*theories the teachers mostly applied in their classroom teaching. (Words limit: 2500, Times New Roman, 1.5 Space.)*

#### Unit IV: Complex Cognitive Process (12)

Specific objectives	Contents
<ul style="list-style-type: none"> <li>• Describe the concept and process for promoting concept formation,</li> <li>• Explain reasoning, critical thinking, decision making and creative thinking as thinking processes</li> <li>• Clarify the concept and process of problem solving,</li> <li>• Describe the socio- cultural dimensions of leaning from gender and ethnic perspectives</li> </ul>	<p><b>4. Complex Cognitive Process</b></p> <p>4.1 Understanding concept</p> <ul style="list-style-type: none"> <li>4.1.1 Meaning of concept</li> <li>4.1.2 Promoting concept formation</li> </ul> <p>4.2 Thinking</p> <ul style="list-style-type: none"> <li>4.2.1 Reasoning : Inductive reasoning and deductive reasoning</li> <li>4.2.2 Critical thinking           <ul style="list-style-type: none"> <li>• Building critical thinking</li> <li>• Strategies for improving children's thinking</li> </ul> </li> </ul> <p>4.3 Decision making : common flaws in decision making</p> <ul style="list-style-type: none"> <li>4.3.1 Creative thinking           <ul style="list-style-type: none"> <li>• Steps in the creative process</li> <li>• Strategies for developing creative thinking</li> </ul> </li> </ul> <p>4.4 Problem solving</p> <ul style="list-style-type: none"> <li>4.4.1 Steps in problem solving</li> <li>4.4.2 Obstacles to solving problems</li> <li>4.4.3 Problem based learning and project based learning</li> </ul> <p>4.5 The socio-cultural dimensions of learning</p> <ul style="list-style-type: none"> <li>• Knowing and leaning from gender perspectives</li> <li>• Knowing and learning practices from indigenous perspectives</li> </ul>

<b>Learning Engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Upload learning resources in the form of papers, books, video/URL link, recorded video, and Power Point slides,</li> <li>• Develop quizzes, discussion questions, objectives questions and upload them on the moodle,</li> <li>• Schedule time for interactive learning, discussion and chat on the moodle through BBB.</li> <li>• Provide themes to the students and arrange the students' BBB presentations every weekend</li> <li>• Make comments on the assignments and provide feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point (slides) uploaded on the moodle,</li> <li>• Take part in the discussion and discussion blog in 9 different questions,</li> <li>• Attempt the quizzes, short-answer questions, and objective type questions.</li> <li>• Take part in the students' BBB (Big Blue Button) presentations (10 minutes for each) on the themes provided</li> <li>• Do assignment IV.</li> </ul>
<p><i>Assignment IV: Prepare your own online group, and summarize the contents group work through discussion. Your summary should bring new ideas and issues in solving problems, generating new thinking, creativity, and ways with critical thinking. Prepare a group report based on your summary.</i></p>	



#### 4. Evaluation

##### 4.1 Internal evaluation

Forty percent of total marks are allocated to the internal evaluation. The internal evaluation will be conducted by the course teacher considering the following activities:

1.	Attendance (contact session and discussion forums)	5
2.	Students' learning engagement	5
3.	Assignment I	10
4.	Assignment II	10
5.	Assignment III (Project work/review books/journal articles/dissertations)	10
Total		40

##### 4.2 External final evaluation

Examination Division of the Office of the Dean, Faculty of Education will conduct the final examination at the end of the semester. Sixty percent of the marks are allocated to the final examination. The type and number of questions to be included in the final examination are as follows:

1.	Objective type questions (multiple choice: 10 questions X 1 mark )	10
2.	Short answer questions (6 questions with 2 or questions X 5 Marks)	30
3.	Long answer questions (2 questions with 1 or question X 10 Marks)	20
Total		60

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### Recommended books and references

- Grace, J.C. (1976). *Human Development*. New York, N.Y.
- Hilgard, E.R. & Bower, H.G. (1975). *Theories of Learning*. Delhi: Prentice Hall.
- Hill, W.F. (1973) *Learning: A survey of psychological interpretation*. Great Britain: Lowe & Brydone.
- Hurlock, E.B. (2002). *Developmental psychology: A life-span approach*. New Delhi: Tata McGraw Hill. **(for Units I & II)**
- Oslon, M. H. & Hergehahn, B.R. (2010) *An introduction to theories of learning (7<sup>th</sup> ed. )* New Delhi : PHI Learning Private Limited.
- Rogers, D. (1972). *Psychology of adolescence*. New York, N.Y.
- Santrock J.W. (2007) *Adolescence, (11<sup>th</sup> ed.)* New Delhi: Tata McGraw-Hill Publishing Company Limited.
- Santrock J.W. (2011) *Educational Psychology, (4<sup>th</sup>ed.)* New Delhi: Tata McGraw-Hill Publishing Company Limited
- Schunk, H.D. (1996). *Learning theories*. Englewood Cliffs, NJ: Prentice Hall.
- Sigelman C.K. & Rider E.A.(2012). *Lifespan human development, (7<sup>th</sup> ed. )* USA : Wadsworth, Cengage Learning
- Woolfolk, A. (2008). *Educational psychology*. India: Pearson Education.
- Mahanty, G. (2002). *Abnormal psychology*. India: Kalayani Pub.



**Ed. 503: Curriculum Practices**

Course No. Ed. 503

Nature of course: Theoretical

Level: Three Semester M. Ed.

Credit hours: 3

Semester: First

Teaching hours: 48

**1. Course Description**

This is a core course designed for One Year M. Ed. (ODL) programme. It aims at equipping the students with deeper knowledge and understanding of various concepts of curriculum, theoretical bases of managing curriculum development, curriculum development processes and problems and challenges of curriculum development in Nepal. Besides, it aims at providing deeper understanding of curriculum dissemination and implementation practices in Nepal.

**2. General Objectives**

The general objectives of this course are as follows:

- To acquaint the students with various concepts of curriculum and enable them to relate them the present Nepali context
- To make them aware of various foundations shaping curriculum and draw implications for the context of Nepal
- To acquaint them with the process of managing curriculum development,
- To enable them to evaluate the process of curriculum development, curriculum dissemination and implementation practices in Nepal, and
- To enable them to assess the issues and challenges related to the school curriculum in Nepal.

**3. Specific Objectives and Contents**

<b>Unit I: Conceptualizing Curriculum (10)</b>	
<b>Specific Objectives</b>	<b>Contents</b>

  
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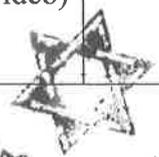
  
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<ul style="list-style-type: none"> <li>• Review the various concepts of the curriculum,</li> <li>• Explore the implications of various concepts of curriculum for understanding school level curriculum of Nepal,</li> </ul>	<p>1.1. Various concepts of the curriculum</p> <p>1.1.1 The curriculum as subjects and subject matters</p> <p>1.1.2 The curriculum as experiences</p> <p>1.1.3 The curriculum as objectives</p> <p>1.1.4. The curriculum as a plan</p> <p>1.1.5 The curriculum as the technological system of production.</p> <p>1.2. Implications of various concepts of the curriculum for understanding the school level curriculum of Nepal.</p>
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### Learning engagement

Roles of the facilitator	Roles of the students
<ul style="list-style-type: none"> <li>• Provide learning resources such as papers, books, video/URL link, recorded video, and Power Point slides containing the concepts of the curriculum.</li> <li>• Provide discussion questions mainly major features, strengths and weaknesses, involved in various concepts of the curriculum.</li> <li>• Get the students to relate these concepts to the Nepali context</li> <li>• Encourage the students for interactive learning and providing timely feedback on their during discussion</li> <li>• Provide the themes to the students and arranges for skype (video) presentations of the students</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) through the moodle or email</li> <li>• Be engaged in discussing on at least two conceptual questions</li> <li>• Be engaged in responding the questions</li> <li>• Students' Skype (video) presentation (10 minutes for each) on the themes provided</li> <li>• Engage in responding to Assignment I</li> </ul>

  
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<ul style="list-style-type: none"> <li>• Make skype (video) presentation and provides feedback on the students' presentations</li> </ul>	
<p><b>Assignment I</b></p> <p><i>Study various concepts of the curriculum; consult the facilitator, books and related materials. Consider the issues, or strengths and weaknesses involved in each of the concepts. Relate concept to Nepali school curriculum.</i></p>	
<p><b>Unit II: Foundations of Curriculum Planning (10)</b></p>	
<p><b>Specific objectives</b></p>	<p><b>Contents</b></p>
<ul style="list-style-type: none"> <li>• Identify the major foundations of planning a curriculum</li> <li>• Explain the forces that shape the curriculum.</li> <li>• Draw implications of curriculum foundations for understanding and developing the school level curriculum in Nepal.</li> </ul>	<p>2.1 Sources of curriculum planning</p> <p>2.1.1 Society and culture</p> <p>2.2.2 The nature of knowledge</p> <p>2.2.3 Human growth and development</p> <p>2.2.4 Learning theories and classroom teaching</p> <p>2.2.5 Technology in classroom instruction</p> <p>2.2 Implications of curriculum foundations for understanding and developing the school level curriculum in Nepal.</p>
<p><b>Learning engagement</b></p>	
<p><b>Roles of the facilitator</b></p>	<p><b>Roles of the students</b></p>
<ul style="list-style-type: none"> <li>• Provides learning resources such as papers, books, video/URL link, recorded video, and Power Point slides.</li> <li>• Provide discussion questions on these forces in the context of Nepal. Encourage the students for interactive learning and timely feedback on the answers.</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) through the moodle or email</li> <li>• Be engaged in discussing at least two major forces of curriculum development such as the Nepali society, nature of child behavior, access to technology, treatment of knowledge in the context of Nepal.</li> <li>• Discuss at least two conceptual questions</li> <li>• Engage in responding the questions</li> </ul>

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<ul style="list-style-type: none"> <li>• Provide the themes and arrange for skype (video) presentation of the students</li> <li>• Makes skype (video) presentation and provide feedback on the students' presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Students' Skype (video) presentations (10 minutes each) on the themes provided</li> <li>• Do Assignment II</li> </ul>
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**Assignment II**

*Study various aspects of foundations of curriculum planning and relate them to the Nepali context: (a) society and culture (b) nature of knowledge, (c) human growth and development, (d) learning theories and classroom teaching (e) technology in classroom instruction. draw the implications of these forces in context of Nepal.*

**Unit III: Managing Curriculum Development (10)**

Specific objectives	Contents
<ul style="list-style-type: none"> <li>• Describe the process of managing curriculum development</li> <li>• Critically examine the classification of goals and objectives</li> <li>• Exemplify each aspect of needs assessment</li> <li>• Illustrate each stage of curriculum management plans</li> <li>• Explain the provision for curriculum development, improvement and change in Nepal.</li> </ul>	3.1 Establishing a philosophy 3.2 Formulating goals 3.3 Classifying goals and objectives 3.4 Using objectives to order learning 3.5 Assessing needs and aspects of needs. 3.6 Stages of curriculum management plan 3.6.1 Analysis stage. 3.6.2 Design stage 3.6.3 Implementation stage 3.6.4 Evaluation Stage 3.7 Integrating subjects. 3.8 Principles and practice of curriculum development, improvement and change in Nepal.

**Learning engagement**

Roles of the facilitators	Roles of the students
<ul style="list-style-type: none"> <li>• Expose to using different modes such as papers, books, video/URL link,</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video,</li> </ul>

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<p>recorded video, and Power Point slides students with relevant policy information, documents and clarify the major underlying principles of curriculum development in Nepal</p> <ul style="list-style-type: none"> <li>• Provide discussion questions</li> <li>• Encourage the students for interactive learning and provide timely feedback on to the students' answers</li> <li>• Provide the themes to the students and arrange for skype (video) presentations for the students</li> <li>• Make skype(video) presentations and provide feedback on the students' presentations</li> </ul>	<p>and Power Point slides) through the moodle or email</p> <ul style="list-style-type: none"> <li>• Be engaged in discussing at least two conceptual questions</li> <li>• Respond to the questions</li> <li>• Attempt the students' Skype (video) presentation (10 minutes each) on the themes provided</li> <li>• Do Assignment III</li> </ul>
<p><b>Assignment III</b> Attempt the following activities</p> <ol style="list-style-type: none"> <li>Identify and critically analyze the principles of curriculum development in the context of Nepal.</li> <li>Draw the strengths and weaknesses of the school level curriculum development process followed in Nepal.</li> <li>Prepare reports in groups and present your findings in the classroom followed by a discussion session.</li> </ol>	
<p style="text-align: center;"><b>Unit IV: Dissemination and Implementation of Curriculum (8)</b></p>	
<p style="text-align: center;"><b>Specific objectives</b></p>	<p style="text-align: center;"><b>Contents</b></p>
<ul style="list-style-type: none"> <li>• Explain the concept of curriculum dissemination and implementation</li> <li>• Establish the relationship of implementation with planning</li> <li>• Point out the factors related to an effective curriculum implementation</li> </ul>	<p>5.1 Concept of curriculum dissemination implementation</p> <p>5.2 Relation of curriculum planning to implementation</p> <p>5.3 Role of incrementalism, communication and supports for effective curriculum implementation</p>

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<ul style="list-style-type: none"> <li>• Reflect on the principles, practices, provision and problems of curriculum dissemination and implementation in Nepal.</li> </ul>	5.4 Principles, practices, provision and problems of curriculum dissemination and implementation in Nepal.
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>• Provides learning resources such as papers, books, video/URL link, recorded video, and Power Point slides on the school level curriculum of Nepal, the curriculum development directory and the curriculum framework.</li> <li>• Provide discussion questions</li> <li>• Encourage students for interactive learning providing timely feedback on the students' answers</li> <li>• Provide the themes to the students and arrange for skype (video) presentation of the students</li> <li>• Give presentations and provide feedback on the students' presentations</li> </ul>	<ul style="list-style-type: none"> <li>• Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) through the moodle or email</li> <li>• Get engaged in discussing and analyzing at least two conceptual questions drawing from the Nepali curriculum documents</li> <li>• Be engaged in responding to the questions</li> <li>• Carry out students' Skype (video) presentations (10 minutes each) on the themes provided</li> <li>• Do Assignment IV</li> </ul>
<p><b>Assignment IV:</b></p> <p><i>The facilitator provides with the principle and practices of curriculum dissemination and implementation. Study the various aspects of curriculum development and implementation practices of Nepal provided by the teacher and draw their strengths and weaknesses.</i></p>	
<b>Unit V: School curriculum and Issues in Nepal (10)</b>	
<b>Specific objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"> <li>• Identify the features of the school level curriculum of Nepal</li> </ul>	6.1 Features of the school curriculum of Nepal 6.1.1 Aims and objectives (national and grade levels) 6.1.2 Grade and subject competencies 6.1.3 Teaching learning strategies

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<ul style="list-style-type: none"> <li>Analyze the curricular issues and challenges related to the school level curriculum in Nepal</li> </ul>	6.1.4 Mode of evaluation 6.2 Need and importance of STEM education in Nepal 6.2 Local curriculum development 6.3 Curricular issues and challenges of Nepal with reference to STEM education
<b>Learning engagement</b>	
<b>Roles of the facilitator</b>	<b>Roles of the students</b>
<ul style="list-style-type: none"> <li>Provide learning resources such as papers, books, video/URL link, recorded video, and Power Point slides</li> <li>Provide discussion questions</li> <li>Encourage the students for interactive learning and provide timely feedback on answers of discussion</li> <li>Provide the themes to the students and arrange for skype (video) presentations for the students</li> <li>Give skype (video) presentations and provides feedback on the students' presentations</li> </ul>	<ul style="list-style-type: none"> <li>Access the learning resources (papers, books, video/URL link, recorded video, and Power Point slides) through the moodle or email</li> <li>Get engage in discussing at least two conceptual questions</li> <li>Respond to the questions</li> <li>Conduct students' Skype (video) presentation (10 minutes each) on the themes provided</li> <li>Do Assignment V</li> </ul>
<p><b>Assignment V:</b></p> <p><i>First find the school level curriculum and other policy documents. Then critically study the various aspects of curriculum elements in your respective subjects (in groups).</i></p> <p><i>Finally, draw the implications of your findings for classroom teaching.</i></p>	

  
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#### 4.Evaluation

Nature of the course	Internal evaluation	Semester examination	Total Marks
Theory	40 Marks	60 Marks	100 Marks

*Note: The students must pass separately in the internal evaluation and the semester (final) examination.*

#### 4.1. Internal evaluation (40 Marks)

Forty percent of the total marks are allocated to the internal evaluation. It will be conducted by the course facilitator based on the following activities.

1. Attendance (contact sessions and discussion forums)	5 Marks
2. Students learning engagement	5 Marks
3. Assignment I	10 Marks
4. Assignment II	10 Marks
5. Assignment III (Project work/review books/journal articles/dissertations)	10 Marks
<b>Total</b>	<b>40 Marks</b>

#### 4.2. External evaluation (60 Marks)

Examination Division, Office of the Dean, Faculty of Education will conduct the final examination at the end of the semester. The marks distribution will be as follows.

1. Objective type questions (Multiple choice questions 10 x 1 mark)	10 marks
2. Short answer questions (6 questions with 2 or questions x 5 marks)	30 marks
3. Long answer questions (2 questions with 1 or questions x 10 marks)	20 marks
<b>Total</b>	<b>60 marks</b>

#### Recommended books and references

##### Recommended books

Kelly, A. V. (2004). *The curriculum theory and practice*. London: Sage Publication. (For Unit

V)



- Ornstein, A. C. & Hunkins, F. (1993). *Curriculum foundation, principles and theory*, (2nd ed.). Boston: Allyn and Bacon. **(For units IV and V)**
- Print, M. (1993). *Curriculum development and design*. (2nd ed.). St. Leonards: Allen & Unwin Pvt. Ltd. **(For units IV and V)**
- Saylor, J. G. & Alexander, W. M. (1974). *Planning curriculum for schools*. New York: Holt, Rinehart and Wonston, Inc. **(For Unit I)**
- Wiles, J. W. & Bondi, J. C. (2011). *Curriculum development: A guide to practice*. (8th ed.). New Jersey: Pearson. **(For Units I, II and III)**
- Zais, R. S. (1976). *Curriculum principles and foundations*. New York: Harper & Row Publishers. **(For Units I and IV)**
- CDC (2007). *National curriculum framework for school education in Nepal*. Bhaktapur: Ministry of Education and Sports. **(For unit VI)**
- CDC (2016) *Curriculum and Curricular materials development directory 2016*. Kff7\oqmd tyf kf7\o ;fdu[L ljsf; lgb]{lzs f @)&# Sano Thimi, Bhaktapur .Government of Nepal , Ministry of Education.

### References

- Sowell, E. J. (1996). *Curriculum and integrative introduction*. New Jersey: Merrill an Imprint of Prentice Hall.
- Taba, H. (1962). *Curriculum development theory and practice*. New York: Harcourt, Brace & World, Inc.

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## Specialization Course

1. Sc. Ed. 506: Foundation of Science Education (3 Cr. Hrs.)



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**Sc. Ed. 506: Foundation of Science Education**

Course code: Sc. Ed. 506

Nature of course: Theoretical

Level: Three Semester M.Ed., Science Education

Credit hours: 3

Semester: First

Teaching hours: 48

**1. Course Description**

The course is designed with the aim to provide the basic professional pedagogical knowledge, and understanding of science classroom practices with an emphasis on developing scientific attitudes, aptitudes and skills necessary to engage in science teaching in the students. This course acquaints the students with the foundations of science teaching so that they will be able to learn to plan for teaching and learning, and select appropriate resources and strategies for teaching

This course provides theoretical content knowledge as well as practical skills through activity. It meets the needs of today's science teachers in their working place by providing pedagogical strategies, techniques, frameworks, exercises, resources and guidelines through the online and distance mode. In this course the contents are organized under seven units.

The students will be provided necessary learning resources, materials, and assignment via, learning management system (LMS). The facilitator will provide supports through LMS and virtual conferencing. During face-to-face interaction in the contact session, the facilitator will disseminate the learning modality, strategies and course provisions. In addition, facilitator will provide printed learning materials, and inform the students about the reference materials like reference books, journal, research articles, newspapers etc.

**2. General Objectives**

The general objectives of the course are as follows.

- To understand the basics of teaching science
- To acquaint the students with national and international efforts for science popularization
- To familiarize them with approaches of designing objectives
- To acquaint them with the structure and design of science curriculum
- To develop critical analysis competency in the students
- To provide the students with in-depth knowledge of modern methods, approaches and techniques of science teaching and learning

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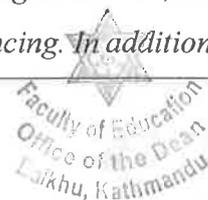
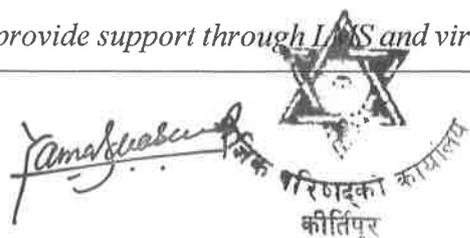
- To develop skills for development and use of teaching learning resources in the students
- To develop in the students' knowledge and skills of planning, designing and managing the science class room, and co- curricular activities.

### 3. Specific Objectives, Contents and Instructional Strategies

Specific Objectives	Contents
<ul style="list-style-type: none"> <li>• Discuss the nature and value of science</li> <li>• Describe the scope of science and science education</li> <li>• Elaborate science as a process and a product</li> <li>• Discuss the concept of divergent thinking in teaching science</li> <li>• Explain the importance of scientific and technological literacy (STL)</li> <li>• Explain the importance of Science, Technology and Society (STS)</li> <li>• Describe the features and importance of science project 2000<sup>+</sup></li> <li>• Illustrate the science popularization initiatives in Nepal</li> <li>• Explain the role and activities of various organizations for science popularization in Nepal</li> <li>• Elaborate the contribution of NAST and Natural History Museum to science popularization in Nepal</li> <li>• Elaborate the recent policy and activities of UNESCO for science popularization</li> </ul>	<p><b>Unit I: Nature and Perspectives of Science Education (8Pds.)</b></p> <p>1.1 Nature and value of science</p> <p>1.2 Scope of science and science education</p> <p>1.3 Science as a process and a product</p> <p>1.4 Divergent thinking in teaching science</p> <p>1.5 Scientific and Technological Literacy (STL)</p> <p>1.6 Science, Technology and Society (STS)</p> <p>1.7 Science project 2000<sup>+</sup></p> <p>1.8 Organizations for science popularization: Science popularization initiatives in Nepal</p> <p>1.9 History and contributions of NAST and Natural History Museum to science popularization</p> <p>1.10 International campaigns: UNESCO activities for science popularization</p>

#### Assignment and Activities:

*The students will be provided with the learning resources, and assignments via, LMS. The facilitator will provide support through LMS and virtual conferencing. In addition, he/she*



will provide the students with e-learning materials; suggest books, journals, research articles, reference books, newspapers, etc. The facilitator can design their own assignment and activities for the students. Some examples are

- Organize a webinar debate on how our society applies scientific and technological education to the improvement of individual life and to the development of society.
- Prepare a report on the activities of various agencies for science popularization in Nepal
- Prepare a report on recent policies and activities of UNESCO and some developed countries for science popularization.

- List out the aims and objectives of teaching science
- Elaborate on the functions of educational objectives in teaching science
- List out the basic criteria for the formulation of behavioral objectives
- Discuss the various approaches to writing instructional objectives
- Develop the teaching objectives for selected topics by the application of the revised Bloom's and Mager's taxonomies
- Clarify the concept of the curriculum
- Explain the principles of curriculum development
- Explain the various approaches to science curriculum development and suggest their implications in the science curriculum development process
- Elaborate the steps of the science curriculum development process
- Discuss the issues in science curriculum development

## Unit II: Objectives and the Science

### Curriculum (11Pds)

- 2.1 Objectives of teaching science
  - 2.1.1 Aims and objectives of teaching science
  - 2.1.2 Functions of educational objectives
  - 2.1.3 Basic criteria for the formulation of behavioral objectives in science
  - 2.1.4 Approaches to writing instructional objectives
    - 2.1.4.1 Revised Bloom's taxonomy
    - 2.1.4.2 Mager's taxonomy
- 2.2 Science Curriculum
  - 2.2.1 Concepts of the curriculum
  - 2.2.2 Principles of curriculum development
  - 2.2.3 Approaches to science curriculum development
  - 2.2.4 Steps of science curriculum development
  - 2.2.5 Issues in science curriculum development
  - 2.2.6 Critical analysis of the school science curriculum of Nepal

<ul style="list-style-type: none"> <li>• Point out the criteria of the ideal science curriculum</li> <li>• Analyze critically the existing secondary science curriculum of Nepal</li> <li>• Compare and contrast the school science curriculum of Nepal and those of the other South Asian countries</li> </ul>	<p>2.2.7 Comparative study of the school science curriculum of Nepal and with those of the South Asian countries.</p>
<p><b>Assignments and Activities:</b></p> <p>The teaching and learning will be based on distance and online mode of instruction. Under the supervision of course facilitator, the students need to perform the following activities</p> <ul style="list-style-type: none"> <li>• <i>Develop the different level of behavioral objectives for teaching science based on the revised Bloom's taxonomy and Mager's taxonomy</i></li> <li>• <i>Analyze the school science objectives using Bloom's taxonomy</i></li> <li>• <i>Analyze critically the existing school science curriculum of Nepal and suggest the ways of improving it.</i></li> <li>• <i>Prepare a report comparing science curriculum framework adopted by the south Asian countries.</i></li> </ul>	
<ul style="list-style-type: none"> <li>• Write the concept, and traits of scientific attitude</li> <li>• Suggest the ways of developing scientific attitudes</li> <li>• Write the teacher's role in developing scientific attitude</li> <li>• Define and classify learning experiences</li> <li>• Illustrate the Edgar Dale's cone of learning experiences</li> <li>• Point out the selection criteria and source of learning experience.</li> <li>• Define motivation</li> </ul>	<p><b>Unit III. Scientific Attitude and Learning Experience and Motivation</b> (6Pds)</p> <p>3.1 The scientific attitude</p> <p>3.1.1 Traits of the scientific attitude</p> <p>3.1.2 Ways of developing the scientific attitude</p> <p>3.1.3 Teacher's role in developing the scientific attitude in learners</p> <p>3.2 Learning experience:</p> <p>3.2.1 Concept and types of learning experiences</p> <p>3.2.2 Edgar Dale's cone of learning experience</p>

<ul style="list-style-type: none"> <li>• Distinguish between intrinsic and extrinsic motivation</li> <li>• Discuss the importance of motivation in science teaching learning</li> <li>• Discuss the theories of motivation and find their implication in science teaching learning</li> </ul>	<p>3.2.3 Selection and sources of learning experience,</p> <p>3.3 Motivation</p> <p>3.3.1 Intrinsic and extrinsic motivation</p> <p>3.3.2 Importance of motivation in science teaching learning</p> <p>3.3.3 Theories of motivation: Maslow's need theory, Herzberg's- motivation hygiene theory, expectancy theory of motivation</p>
<p><b>Assignment and Activities:</b></p> <p>The teaching and learning will be based on the distance and online mode. Under the supervision of course facilitator, students need to perform the following activities</p> <ul style="list-style-type: none"> <li>• <i>Select any three high schools in your locality and study the science teacher's perceptions about the scientific attitude and their practices for developing scientific attitudes in students.</i></li> <li>• <i>Conduct a collaborative webinar on the student's motivation and performance</i></li> <li>• <i>Prepare a report on the source and selection of learning experiences in your locality</i></li> <li>• <i>Design activities for teaching science incorporating the ideas of theories of motivation</i></li> </ul>	
<ul style="list-style-type: none"> <li>• Explain the features of student-centered methods of teaching science</li> <li>• Explain the skills, abilities and attitudes developed through the student-centered methods and techniques</li> <li>• Discuss and use above mentioned methods and techniques of teaching science</li> <li>• Explain the individualized system of instruction</li> <li>• Design the programmed instruction model based on various types of programmed instruction</li> </ul>	<p><b>Unit IV: Science Teaching Methods and Techniques (6 Pds)</b></p> <p>4.1 Introduction to student centered methods</p> <p>4.2 Team teaching, laboratory method, heuristic method, problem solving method and inductive approach</p> <p>4.3 Techniques of teaching science: brainstorming, critical thinking and discussion,</p> <p>4.4 Individualized science instruction</p> <p>4.5 Programmed instruction</p>
<p><b>Assignment and Activities:</b></p>	



This unit aimed to develop students' competencies as science teachers by developing the knowledge about different methods and techniques of teaching science and individualized instruction. Some examples of activities are

- *Select any topic of your choice from science of the secondary level and develop the strategies of interaction with students by utilizing the various methods and techniques of teaching. Suggest the ways of making the methods and techniques you have selected more scientific and activity/ student centered.*
- *Plan lesson activities based on the techniques of teaching science that you have selected*
- *Develop a programmed instruction module for secondary level science lessons using different types of programmed instruction*

- Elaborate the features of the science textbook
- Suggest the meaningful use of the science text book
- Analyze critically the existing science text books
- Design self -learning materials and instructional modules
- List out the basic principle and criteria of selecting teaching aids
- Classify the teaching aids and write down their characteristics
- Point out the importance of instructional aids
- Elaborate the concept of improvised apparatus and write their characteristics
- Justify the importance and uses of improvised apparatus in teaching science
- Discuss the techniques of improvisation of science apparatus

#### **Unit V. Science Teaching Resources**

**(6 Pds)**

- 5.1 The science text book
  - 5.1.1 Introduction, features and uses
  - 5.1.2 Analysis and evaluation of science text book.
- 5.2 Self -learning materials and instructional module
- 5.3 Material management
  - 5.3.1 Concept and principles of the selection of teaching aids
  - 5.3.2 Types of instructional aids
  - 5.3.3 Importance and use of instructional aids
  - 5.3.4 Improvised apparatus
    - 5.3.4.1 Introduction, characteristics and importance of improvised apparatus
    - 5.3.4.2 Techniques of the improvisation of science apparatus

<ul style="list-style-type: none"> <li>• Design improvised apparatus for science teaching using no cost/ low-cost materials</li> </ul>	
<p><b>Assignment and Activities:</b> In this unit students will be better informed about the use of instructional aids and supplementary materials. Students will be provided reading materials. They will discuss in detail the features of text-book and teaching resources and review the science journals and research articles provided to you by the facilitator.</p> <ul style="list-style-type: none"> <li>• <i>Design science apparatus for teaching physics and chemistry of secondary level</i></li> <li>• <i>Review critically a science textbook and suggest the ways for improving them</i></li> </ul>	
<ul style="list-style-type: none"> <li>• Compare the national and international basic qualifications required for science teachers at different levels</li> <li>• List out the qualities and responsibilities of the science teacher</li> <li>• Discuss the science teachers' multiple roles in teaching science</li> <li>• Discuss the various type of teaching competencies</li> <li>• Elaborate the meaning of professional development</li> <li>• Describe the approaches to professional development</li> <li>• Discuss the various strategies for science teacher's professional development</li> <li>• Discuss the teacher professional development practices in Nepal</li> <li>• Explain the knowledge and skills developed through training</li> <li>• Suggest the ways of transferring training skills to teaching science</li> </ul>	<p><b>Unit VI. Science Teachers' Professional Development (6 Pds)</b></p> <p>6.1 The science teacher</p> <p><b>6.1.1</b> Basic requisites, qualities, and responsibilities of the science teacher</p> <p><b>6.1.2</b> Teaching competencies</p> <p>6.2 Professional development</p> <p>6.2.1 Meaning &amp; approaches to professional development: system approach, competency-based approach and self- study-based approach</p> <p>6.2.2 Strategies to teachers' professional development</p> <p>6.2.3 Teacher professional development activities in Nepal,</p> <p>6.2.4 Knowledge and skills through training,</p> <p>6.3 Micro teaching</p> <p>6.3.1 Steps of micro-teaching</p> <p>6.3.2 Importance of micro-teaching</p> <p>6.3.3 University practice of micro teaching and teaching practice</p>

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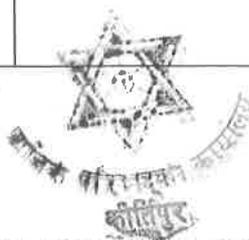
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<ul style="list-style-type: none"> <li>• Write down the necessary steps, importance and the university practices of micro teaching and teaching practice</li> <li>• Elaborate the competencies developed through micro teaching practices</li> </ul>	6.4 Competencies developed through micro teaching practices
<p><b>Assignment and Activities:</b></p> <p>This unit dealt with the teacher qualities, responsibilities and professional development. Students will be provided with some resources online by the facilitator</p> <ul style="list-style-type: none"> <li>• <i>Select a few schools in your locality and prepare a report on their policy and practice of faculty development.</i></li> <li>• <i>Design a google survey form and collect the science teachers' perspective about the effectiveness of the TPD training in Nepal and their practices of transfer of training to teaching.</i></li> <li>• <i>Visit a school nearby your locality and observe the same science class for two to three times, find the issues and problems in classroom practices. Share your ideas for the making classroom practice more effective.</i></li> </ul>	
<ul style="list-style-type: none"> <li>• Discuss the concept of classroom dynamics and classroom management</li> <li>• Design various model of the classroom for effective teaching learning of science</li> <li>• Discuss the importance of managing the science classroom</li> <li>• Elaborate the objectives, principles, and importance of co-curricular activities in teaching science</li> <li>• Discuss the purpose, structure, organization and function of science clubs</li> <li>• Develop a strategic plan for organizing a science exhibition</li> <li>• Discuss the purpose, organization, and functions of science fairs</li> </ul>	<p><b>Unit VII: Classroom Management and Co-curricular Activities in Science</b> (5 Pds)</p> <p>7.1 Introduction to class room dynamics and management</p> <p>7.2 Classroom designs</p> <p>7.3 Importance of classroom management</p> <p>7.4 Co-curricular activities:</p> <p>7.4.1 Concept, objectives, principle and importance of co-curricular activities</p> <p>7.4.2 Science clubs: purpose, structure, organization and functions</p> <p>7.4.3 Science exhibition and fairs: purpose, organization and importance</p> <p>7.4.4 Science excursion</p>

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<ul style="list-style-type: none"> <li>Elaborate on the importance of science excursion and the ways of organizing it</li> </ul>	
<p><b>Assignment and Activities:</b></p> <p>This unit focuses on classroom dynamics, the strategies and activities and strategies of classroom management. Facilitator will provide the learning materials and tasks for self-paced learning. Examples of activities are</p> <ul style="list-style-type: none"> <li><i>Develop some strategies for managing a multipurpose science classroom.</i></li> <li><i>Design various models of the science classroom</i></li> <li><i>Develop a detailed plan for organizing and conducting a science fair</i></li> <li><i>Select a topic from secondary-level science curriculum and develop a plan for conducting a science excursion.</i></li> <li><i>Design, conduct and report on the co-curricular activities in groups</i></li> </ul>	

#### 4. Instructional Techniques

##### 4.1 General Techniques

- Online lectures and question-answer.
- Participatory activities.
- Inquiry: generating questions and answers through dialogues.
- Internet search.

##### 4.2 Specific Instructional Techniques

Units	Specific instruction	Remarks
1	Document study and web surfing	
2	Objective designing and curriculum review workshop	
3	Project work	
4	Virtual Conference	
5	Collaborative work	
6	Online survey and manuscript writing	
7	Real field/online workshop	

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**Note:** During the contact session, a short presentation covering the course plan, time schedule, models of lesson delivery, assessment and evaluation system, and so on will have to be given by the facilitators and the teacher experts.

### Evaluation

Nature of the course	Internal Evaluation	Semester Examination	Total Marks
Theory	40 Marks	60 Marks	100 Marks

**Note:** The students must pass separately in the internal evaluation and semester (final) examination.

#### 5.1 Internal Evaluation (40 Marks)

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

1. Attendance (Contact session and discussion forums)	5 marks
2. Students learning engagement	5 marks
3. Assignment I	10 marks
4. Assignment II	10 marks
5. Assignment III (Project work/review of books/journal articles/dissertations)	10 marks
<b>Total</b>	<b>40 marks</b>

#### 5.2 External Evaluation (Final Examination) (60 Marks)

Examination Division, Office of the Dean, Faculty of Education will conduct the final examination at the end of the semester. The marks distribution will be as follows

1. Objective type questions (multiple choice question 10 x 1 mark)	10 marks
2. Short answer questions (6 questions with 2 or questions x 5 marks)	30 marks
3. Long answer questions (2 questions with 1 or question x 10 marks)	20 marks
<b>Total</b>	<b>60 marks</b>

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