



KATHMANDU UNIVERSITY
SCHOOL OF EDUCATION



Department of **STEAM** Education

The Department of STEAM Education offers the following Masters and PGDE programs:

2 Years

M Ed in Mathematics Education

1 Year

M Ed in STEAM Education

1 Year

PGDE in STEAM Education



Hattiban, Lalitpur, Nepal



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M Ed in Mathematics Education | 2 Years

The Department of STEAM Education launched an M Ed in Mathematics Education in February 2006 and has been offering courses to produce quality teachers, teacher educators, material developers, and researchers. The program has been running smoothly and our graduates have been absorbed in reputed positions in their respective fields both within Nepal and abroad. The traditional approach to teaching mathematics has not been able to make a better and positive image of mathematics; rather it has contributed to depicting mathematics as a dry, non-creative and difficult subject. Besides, without the skills and knowledge of research, teachers rarely focus on the evidence-based approach to pedagogical change. The illumination of knowledge in school education in general and in mathematics education, in particular, has been mounting day by day.

Structure of the program

The program is of four semesters expanding for two years. There are courses for 54 credits comprising Core Courses (6 credits), Foundation

Courses (21 credits), Specialization Professional Courses (12 credits), Practical Courses (9 Credits) and Elective Courses (6 credits).

Entry requirements

The candidates having a B. Ed in Mathematics or PGDE in Mathematics or BA in Mathematics or B. Sc in Physical and Mathematical Sciences or B. E. any equivalent degree* from a university or an institution recognized by Kathmandu University with minimum second division or 2.5/4 in aggregate will be eligible. The candidates who have completed a Bachelor degree with at least 3 full courses (3 credits each or 100 full marks each) of mathematics courses can also apply for the program.

*Internationally, graduates of the following areas are eligible to study mathematics education.

- Computer Science
- Computing with mathematics minor
- Computer and Electronics engineering programs

Courses

Core Courses (6 Cr. Hrs.)

EDUC 508: Theory and Practice in Education (3)
EDUC 509: Research Methodology (3)

Foundation Courses (21 Cr. Hrs.)

EDMT 501: Analysis (3)
EDMT 505: Algebra (3)
EDMT 509: Topology (3)
EDMT 511: Mathematical Modeling (3)
EDMT 512: Statistics (3)
EDMT 513: Number Theory and Teaching Arithmetic (3)
EDMT 515: Discrete Mathematics and Problem Solving (3)

Specialization Professional Courses (12 Cr. Hrs.)

EDMT 540: ICT in Mathematics Education (3)
EDMT 541: Teaching and Learning in Mathematics (3)
EDMT 542: Curricula in Mathematics Education (3)
EDMT 543: Assessment in Mathematics Education (3)

Practical Courses (9 Cr. Hrs.)

EDMT 545: Internship (3)
EDMT 546: Research Project-1 (3)
EDMT 547: Research Project-2 (3)
OR
EDMT 599: Dissertation (6)

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Elective Courses (6 cr. Hrs.) (Any Two)

EDMT 516: Probability and Operations Research (3)
EDMT 517: Multivariable Calculus (3)
EDMT 518: Functional Analysis (3)
EDMT 519: Fractal Geometry (3)
EDMT 548: Recent Paradigms of Mathematics Learning (3)
EDMT 549: Historical Development of Mathematical ideas (3)
EDMT 550: Ethnomathematics (3)
EDMT 514: Theory and Application of Differential Equations (3)
EDMT 544: Teacher Development (3)

M Ed in STEAM Education | 1 Year

The Department of STEAM Education runs an M Ed in STEAM Education with a holistic approach for developing competent teachers, teacher educators, and educational leaders who can contribute towards meaningful and life-affirming pedagogical processes.

The M Ed in STEAM Education program is of two semesters. There are nine courses for 27 credits comprising two Core Courses (6 credits), five Professional Courses (15 credits) and two Practical

Courses (6 Credits). Apart from these courses, non-credit workshops shall be offered. The weightage of such workshop shall be 30 hours per semester.

Entry requirements

The candidates having a Master's degree in any discipline from a university or an institution recognized by Kathmandu University are eligible to apply in the M Ed (One Year) Program in STEAM Education.



Courses

Core Courses (6 Cr.Hrs)

EDUC 508: Theory and Practice in Education (3)
EDUC 509: Research Methodology (3)

Specialization courses (9 Cr. Hrs)

STEAM Ed 501: Information Communication Technologies (ICTs) in STEAM Education (3)
STEAM Ed 511: Innovative Pedagogies (3)
STEAM Ed 521: Curriculum Leadership (3)

Elective Courses (Any two) (6 Cr. Hrs)

STEAM ED 520 Resource Material Development in STEAM Education
STEAM Ed 525 Education for Sustainable Development (3)



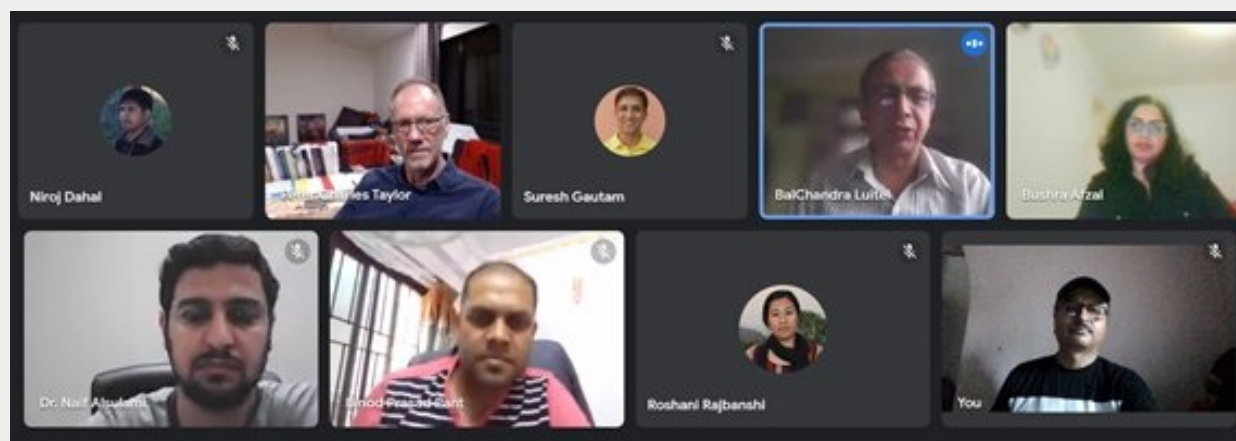
STEAM Ed 530 Action Research (3)
 STEAM Ed 535: Perspectives in STEAM Education
 STEAM Ed 540 STEAM Pedagogy for Mathematics Education (3)
 STEAM Ed 545 STEAM Pedagogy for Science Education (3)
 STEAM Ed 550 STEAM Pedagogy for Language Arts Education (3)
 STEAM Ed 555 Creative Arts in STEAM Education (3)
 STEAM Ed 560 Gender and Indigenous Knowledge (IK) in STEAM Education (3)
 STEAM Ed 570: Advanced Topics in STEAM Education

Practical Courses (6 Cr. Hrs)

STEAM Ed 541 STEAM Educational Research Project (3)
 STEAM Ed 544 Practicum (3)

Non-Credit Workshops (30+30 hours)

Non-credit workshops (30 hours per semester) shall be offered in areas that are foundational and essential for enhancing basic skills in areas of fine arts, technology and design etc.



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Post Graduate Diploma in STEAM Education | 1 Year

Program

The emerging need for pedagogical innovation has indicated trans, multi and interdisciplinary approaches to holistic and sustainable learning via combinations of science and arts-based approaches. STEAM as a pedagogical approach is considered helpful for learners to develop both analytic and creative faculties by using project-based, inquiry-based and problem-based learning in an integrated learning environment. Different disciplines in STEAM Education are regarded as references of skills and knowledge systems for learners to solve real-world problems, to develop transversal competences, to design innovative STEAM products, and to experience a productive culture of learning.

With these perspectives, KUSOED has developed a PGDE (One-Year) program in STEAM Education. The

PGDE program is specially designed for in-service/pre-service teachers, teacher educators, school leaders, and recent graduates who are interested in developing expertise in STEAM Education through this innovative educational program.

Structure of the program

The program is for two semesters. The 27 credit hours program includes (a) core courses (3 credit hours) (b) specialization courses (18 credit hours), c) elective courses (3 credit hours) and (c) the practicum (3 credit hours).

Entry requirements

The entry requirement for the PGDE in STEAM Education is a Bachelor's degree in any disciplines.



Courses

Core Courses (3)

EDUC 401 Educational Philosophies (3)

Specialization Courses (18)

STED 403 STEAM Pedagogy (3)
STED 441 ICT in STEAM Education (3)
STED 447 Resource Material Development in STEAM Education (3)
STED 411 Curriculum in STEAM Education (3)
STED 421 Assessment in STEAM Education (3)
STED 428 Action Research in STEAM Education (3)

Elective Courses (3) (Anyone)

STED 431 Designing e-assessment in Education (3)
STED 432 E-research in Education (3)
STED 433 Guidance and Counselling in Education (3)
STED 434 Ethnomathematics (3)
STED 435 Teaching Science (3)
STED 436 Teaching and Learning in Mathematics (3)
STED 437 Teaching Language Arts and Social Studies (3)

Practical Courses (3)

EDUC 499 Practicum (3)

Faculty and Staff

Professors

Bal Chandra Luitel, PhD (Dean)
Laxman Gnawali, PhD

Mahesh Nath Parajuli, PhD
Mana Prasad Wagley, PhD

Associate Professors

Dhanapati Subedi, PhD (Associate Dean, Academic Affairs)
Prakash C. Bhattarai, PhD (Associate Dean, External Affairs)
Tikaram Poudel, PhD
Hem Raj Kafle, PhD (HoD, Language Education)

Assistant Professors

Binod Prasad Pant (Acting Head, Department of STEAM Education)
Parbat Dhungana (on study leave)
Suresh Gautam, PhD (Acting Head, Department of Development Education)
Shesha Kanta Pangen, PhD (Acting Head, Department of Educational Leadership)
Rebat Kumar Dhakal, PhD
Roshani Rajbanshi, PhD
Bharat Prasad Neupane
Rajiv Ranjit, PhD

Lecturers

Indra Mani Shrestha
Lina Gurung, PhD

Netra Kumar Manandhar

Research Assistants

Bikash Ghaju
Surendra Prasad Bhatta
Jeevan Tamang

Niroj Dahal
Nimesh Shrestha
Aakansha GC Bhujel

Administrative Staffs

Shiva Nath Mainali (Manager)
Suman Acharya (Officer)
Mandira Dhungan (Finance)
Prabina Kayastha (Library)
Bibek Bhandari (IT)

Anju Gautam (Store)
Raju Maharjan (Exam)
Dil Bahadur Shrestha (Front Desk)
Ganesh Khatiwada (Front Desk)



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