Kathmandu University (BE003)
NEEM Project
Mid-Term Report

Duration February 2023- July 2024

WP1 Management
T 1.1 Online Kick-off meeting attended by all the members of the KU team
T 1.2 Planning meeting conducted on April 2nd week 2023 at Kathmandu University
T 1.3 Regular follow-up meetings have been continuously attended by the KU team

WP2 Pedagogical guidelines
T 2.2 Participated in a collaborative workshop at ISCTE for reviewing and revising the pedagogical guidelines
T 2.3 KU has been implementing pedagogical guidelines in the course material development

WP3 eLearning system configuration
T 3.1 KU has set up a course material repository: https://neem.ku.edu.np/lms
T 3.2 KU has imported course materials into its Moodle platform
MS 1 Repository for educational materials running at KU, and open for contributions for all partners. The repository is running after testing it.
D 3.1 KU successfully developed and run the eLearning system

WP4 Course material development
T 4.1 KU also participated in the planning of the project in the planning meeting in Nepal
T 4.2 During a physical workshop in Nepal, KU actively participated in learning material development for first and second-semester courses
T 4.3 For two lecturers course on health data analytics at UiO is remaining, and that needs to be accomplished
T 4.4 Learning material finalized for the third semester during a physical workshop in Nepal
T 4.5 Learning materials for third-semester courses have been placed online

WP5 Master program establishment at KU
T 5.1 Course material specific to KU requirements has been adopted
T 5.2 KU academic council approved course modules
T 5.3 The first batch of the master's program admitted 17 students through an open admission call by announcing stipends for female students
T 5.4 Courses have been taught and supervised by KU

T 5.5 Academics from UiO and ISCTE will co-teach two-course modules and co-supervise two master students with KU lecturers

MS 1 KU course modules approved by the academic council. 17 qualified students started the program. *The list of admitted students is attached.* **[Attachment 1]**

D 5.1 Module approval

D 5.2 Student Recruitment completed

WP6 Master program establishment at PU

D 6.1 *List of approved course modules attached* **[Attachment 2]**

WP7 Master students exchange

T 7 *Master students exchange announcement attached.* **[Attachment 3]**

T 7.4 Mobility planned for Spring 2025

WP8 Lecturers doing PhD

T 8.1 Selection of PhD students through an open call. Notice and selection attached. Selected 2 male and 2 female lecturers

T 8.2 All partners agreed to select 4 PhD candidates

T 8.3 Applications from them collected

T 8.4 4 PhD candidates admitted

T 8.5 All are doing coursework and planning for their visit to Norway within the year 2025

T 8.6 All PhD students are doing fieldwork and receiving expenses

T 8.7 By the year 2025, all PhD students will visit UiO or ISCTE for 2-3 months

T 8.8 PhD students need to write research articles for journals and conferences

MS 1 *List of selected PhD students attached, List of admitted students attached* **[Attachment 4]**

D 8.1 4 PhD students from KU and 2 PhD students admitted at Kathmandu University

WP9 Lab set-up and governance

T 9.1 Necessary resources like hardware, computers, laptops, smart boards, and servers were purchased and set up in a lab with open source software like DHIS2, OpenMRS, Bahmni, and OpenIMIS and running smoothly

T 9.2 Two technical staff from KU have been trained in Oslo for lab setup

T 9.3 DHIS2 calendar software workshop attended at UiO

T 9.4 Room 303 in Block 9 of the School of Engineering has been allocated for the Health Informatics laboratory under the NEEM project. Lab governance is working well with the help of one dedicated technical staff. *The vacancy call is attached.* Student Project activities are going on in the lab **[Attachment 5]**

T 9.5 During evaluation for satisfaction both lecturers and students are happy with the project support

MS 1 All equipment necessary for lab setup was purchased, open source different software was installed, and Two external projects applied

D 9.1 Equipment installed - achieved

D 9.2 Technical training carried out - achieved
D 9.3 Evaluation of satisfaction - positive

WP10 Training for Quality Assurance
T 10.1 Actively participated in developing quality indicators
T 10.2 KU administration supported to implement quality indicators
T 10.3 Progress report submitted regularly

WP11 Dissemination
T 11.1 and T 11.3 KU have presented the NEEM project in different venues both inside and ourside Nepal.
Speakers | Digital Health Conference (2022) : BPKIHS
Digital Health Conference_Nov28_29_2022_RB_KU_Nepal.pptx.pdf
National Digital Health Day observed - myRepublica
IEEE Nepal Section Workshop, Kathmandu Nepal, 16 December 2024
KU Participation in Erasmus+ cluster meeting, Bangkok 13-14 November 2024

T 11.2 Project website is designed, developed, and operational.
      https://neem.ku.edu.np/
MS 1 NEEM website is operational *https://neem.ku.edu.np/*
      Social media group established
D 11.1 Report to partner universities
D 11.2 Website is operational

Note:

eHealth Software and DHIS2 Calendar Workshop participants in Oslo, Norway:
- Dipesh Khadka
- Prabesh Guragain

Project management meeting and IoT Training Workshop in Oslo and Lisbon:
- Rabindra Bista
- Santosh Khanal
- Puspanjali Adhikari

DHIS2 conference participant at Oslo, Norway:
- Nisha Thapa

Events, meetings, and mobility
E 1.1 Physical planning meeting and workshop organized at Kathmandu University, Nepal
[Attachment 6]
E 2.1 Actively participated in guidelines revision workshop in Lisbon, Portugal
E 2.2 Actively participated in a training workshop at Pokhara, Nepal
E 3.1 Actively participated in an E-learning workshop at Pokhara, Nepal

E 8 Coursework and research in eHealth for PhD studies is going on
E 9.1 Technical training in E-health software completed
E 9.2 Attended Nepalese calendar workshop in Oslo by the same team
E 11.2 KU presented about the master's program and NEEM project at the national conference
(T 11.1 and T 11.3)

Further Achievements:

A. Due to the great impact of the NEEM project, KU has recently established the Department of Health Informatics in which the Bachelor program will also run from this fall session of 2024 along with the Master (NEEM) and PhD (NEEM) program for the first time in Nepal.

B. Besides 4 PhD students of KU, it has enrolled 2 PhD students of Pokhara University. In total there 6 PhD students of the NEEM project are admitted at Kathmandu University.

C. The following research paper has been published under the NEEM project

International Journals

1. Harnessing Wearable Devices for Enhanced Long-Term Care: Opportunities, Challenges, and Future Directions, S Phuyal, LB Elvas, JC Ferreira, R Bista – International Journal of Computer Information Systems and Industrial Management Applications, VOL.16 NO.3 2024.

2. Extended Study of Gait Analysis in Identification of Cardiovascular Diseases, R Bista, S Sigdel, JC Ferreira – International Journal of Computer Information Systems and Industrial Management Applications, VOL.16 NO.2 2024.

3. Advancing Tuberculosis Detection in Chest X-rays: A YOLOv7-Based Approach, Rabindra Bista, Anurag Timilsina, Anish Manandhar, Ayush Paudel, Avaya Bajracharya, Sagar Wagle, and Joao C. Ferreira. 2023. Information 14, no. 12: 655. https://doi.org/10.3390/info14120655

4. Enhancing IoT Device Security Through Network Attack Data Analysis Using Machine Learning Algorithms, Ashish Koirala, Rabindra Bista, and Joao C. Ferreira, Future Internet Volume 15 Issue 210 pp 1-30 June 2023 Publisher: MDPI. https://doi.org/10.3390/fi15060210

International Conferences

1. Improving Evaluation Measures Using Ensemble Technique in Diabetes Dataset: Bista, Rabindra; Sharma, Binay; Sanjog, Sigdel; Khanal, Santosh; Ferreira, Joao Carlos A; 14th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA'23), December 11-15, 2023 Porto, Portugal

2. Gait Analysis for Early Detection of Cardiovascular Diseases Using MPU-6050 Sensor: An Analytical Framework with Data Augmentation Algorithm; Bista, Rabindra; Sanjog, Sidgel;

Ferreira, Joao Carlos A; 14th International Conference on Innovations in Bio- Inspired Computing and Applications (IBICA'23), December 11-15, 2023 Porto, Portugal

3. Doctors' Handwriting Recognition Using CNN and BLSTM Models: Khanal, Santosh; Bista, Rabindra; Ferreira, Joao Carlos A; 14th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA'23), December 11-15, 2023 Porto, Portugal

4. Blockchain Technology in Healthcare: Centralizing Patient Medical Records – A Survey: Phuyal, Sudip; Ferreira, Joao Carlos A; Bista, Rabindra; 14th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA'23), December 11-15, 2023 Porto, Portugal

5. Wearable Devices for Long-Term Care – Survey and Opportunities: Phuyal, Sudip; Elvas, Luís B.; Ferreira, Joao Carlos A; Bista, Rabindra; 14th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA'23), December 11-15, 2023 Porto, Portugal

D. Successfully hosted project midterm evaluation by funding agency

E. Formation of Health Informatics Community from Undergraduate Students
Localization of Health IT tools like Nepali EHR, and DHIS2.
Undergraduate students are using NEEM lab for research/semester projects.
https://kucc.ku.edu.np/hi
DHIS2_Implementation.pdf
pitch deck.pdf

Health Informatics community Student names are attached

Attachment 1: Name of Master students Based at Kathmandu University

S. No.	Name
1	Riya Lamichhane
2	Simran Bhandari
3	Sudha Yadav
4	Kritika Baral
5	Shreelata Rana
6	Usha Adhikari
7	Jyotish Mandal
8	Abik Shrestha

9	Alish Bhomi	
10	Subash Dawadi	
11	Dammar Bam	
12	Dinesh Prasad Ghimire	
13	Bhuwan Timalsina	
14	Subash Khatiwada	
15	Sijal Rupakheti	
16	Shashwot Musyaju	
17	Nilanjana Devkota	

Attachment 2: List of approved course modules

Revised Four Semester Plan (Starting from Fall 2024):

Year I Semester I (12-Credit)	Year I Semester II (15-Credit)	Year II Semester III (12-Credit)	Year II Semester IV (9- Credit)
Foundation of Health Information System	Health Database System	GIS in Health Informatics	Thesis
Digital Health	Health Data Standardization	Health Data Analytics	
Ethical and Privacy Issues in Health Informatics	Health Research Methodology	Project Work in Health Informatics	
Elective 1	Elective 3	Elective 4	
Elective 2			

KATHMANDU UNIVERSITY

SCHOOL OF ENGINEERING
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Dhulikhel, P.O. Box 6250, Kathmandu, Nepal
Tel: (011) 661399, 661511, Fax: 977-11-661443, e-mail: cse@ku.edu.np

Date: 30th April 2024

Student Exchange Opportunity in Masters in Health Informatics Program

Department of Computer Science and Engineering (DoCSE), Kathmandu University is currently undertaking a **Nepalese Education in E-health Masters (NEEM) project** Co-funded by the European Union under the Erasmus+ Program. This project aims to promote the capacity development of the faculties to support the graduate programs in Health informatics at Kathmandu University (KU).

We are pleased to announce a student's exchange program (1 male and 1 female) for 2 months at University of Oslo, Norway. The exchange activity will be conducted in fall semester 2024.

Eligibility:

- Applicant must be a student enrolled in a Master's program in Health Informatics in the year 2023/2024 under the NEEM project.

Benefits:

- This project will cover the two way air fare (economic) and living expenses as per project rule.

Eligible students are requested to submit the following documents in the Department of computer science and engineering no later than 15th May 2024.

- application letter for the scholarship
- curriculum vitae
- academic certificates
- recommendation letter

For Further information please contact to the Department of Computer Science and Engineering.

Rabindra Bista, PhD
Associate Professor,
Lead, NEEM Project
Department of Computer Science and Engineering
Kathmandu University

Attachment 3: Master students exchange announcement attached

KATHMANDU UNIVERSITY

SCHOOL OF ENGINEERING
Department of Computer Science & Engineering
Dhulikhel, P.O. Box 6250, Kathmandu, Nepal
Tel: (011) 661399, 661511, Fax: 977-11-661443, e-mail: cse@ku.edu.np

6th January 2023

In response to the PhD Application Call dated on December 07, 2022 funded under **Nepalese Education in E-health Masters (NEEM) Project**, the following applicants are selected for the PhD Position on merit basis.

Selected Applicants:

S.N	Name of the Applicants	Department
1	Madhav Prasad Pandey	Electrical and Electronics Engineering
2	Praynita Karki	Computer Science and Engineering
3	Navin Ghimire	Computer Science and Engineering
4	Amrit Dahal	Computer Science and Engineering

Waiting List:

S.N	Name of the Applicants	Department
1	Deni Shahi	Computer Science and Engineering
2	Upasana Acharya	Pharmacy

Selected applicants are informed to contact Block 09, Room No: 407 by 10th of January, 2023 for further processing.

Note: The candidate(s) in the waiting list will be contacted after 10th of January 2023, if any of the selected candidate is unable to respond by the above deadline.

Rabindra Bista, PhD
Associate Professor,
Lead, NEEM Project
Department of Computer Science and Engineering
Kathmandu University

Attachment 4: List of Selected PhD students based on Kathmandu University

Attachment 4: List of PhD students admitted based on Kathmandu University

S.No.	PhD student name	Institute	Supervisor
1	Madhav Prasad Pandey	Kathmandu University	Rabindra Bista
2	Nabin Ghimire	Kathmandu University	Rabindra Bista
3	Praynita Karki	Kathmandu University	Rabindra Bista
4	Deni Shahi	Kathmandu University	Rabindra Bista
5	Renu Karki	Pokhara University	Uttam Budhathoki from KU
6	Raksha Rimal	Pokhara University	Subodh Upadhaya from KU and Amar Nagila from PU

KATHMANDU UNIVERSITY

SCHOOL OF ENGINEERING
Department of Computer Science & Engineering

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Tel: (011) 661399, 661511, Fax: 977-11-661443, e-mail: cse@ku.edu.np

2/22/2023

Application call for Technical Assistant

The Department of Computer Science and Engineering (DoCSE), Kathmandu University is currently undertaking a **Nepalese Education in E-health Masters (NEEM) project** funded by the European Union under the Erasmus+ Program. This project aims to promote the capacity development of the faculties to support the graduate program in Health informatics at Kathmandu University (KU). In this context applications from qualified, hardworking and result-oriented aspired applicants are hereby invited for the following position.

Position: **Technical Assistant**

No. of Positions: 1

Assignments:
The Technical Assistant will work on design, develop and deploy of the website for the NEEM Project. In addition, s/he will be responsible for the developing, deploying and integrating of the Social Media Page of the project

Eligibility:

- Student currently studying Bachelor's degree or above in Engineering/Information Technology or Computer Science/ Health Science.
- Preferences will be given to the students who have enrolled in Masters' in Health Informatics.

Salary and Benefit:

- Remuneration can be provided as per the KU rule.

Eligible applicants are requested to send an application along with a complete curriculum vitae to Block 9, Room 407 no later than 28th February 2023.

Only short listed candidate will be called for an interview.

Rabindra Bista, PhD
Associate Professor,
Lead, NEEM Project
Department of Computer Science and Engineering
Kathmandu University

Attachment 5: Vacancy Call for Technical Assistant

Attachment 6: Students name list for Health Informatics Community

S.N	Name
1	Nirjal Bhurtel
2	Sugat Sujakhu
3	Dipen Khatri
4	Sushan Adhikari
5	Ashwini Subedi

NEEM Lab

NEEM lab

NEEM lab

Banner for NEEM workshop at Kathmandu University

Admission Call for Masters in Health Informatics