The University of British Columbia

Executive Office of Asia Pacific Forestry Education Coordination Mechanism
Faculty of Forestry
Centre of Teaching, Learning and Technology

Completion Report – Forestry Online Course Development Workshop

AP - FECM

THE UNIVERSITY OF BRITISH COLUMBIA
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TABLE OF CONTENTS

Overview

Background

The “Innovative Sustainable Forest Management Education in the Asia-Pacific Region Project”, initiated by APFNet, was officially launched in 2013 with its overall goal to improve the capacity in Sustainable Forestry Management (SFM). The first phase of this project was completed by 2016 and embodied an innovative pedagogical approach to convey knowledge on SFM and related issues to various forestry stakeholders through a combination of online learning, short-term onsite training, and community sharing of experiences.

Five universities, including the University of British Columbia (UBC), Beijing Forestry University (BFU), University of Melbourne (UM), University of the Philippines Los Baños (UPLB) and Universiti Putra Malaysia (UPM), have worked together to develop the first series of online courses. In 2015, five core courses were created and made accessible online free of charge as open education resource (http://apfecm.forestry.ubc.ca/sfmonline-courses/).

List of existing courses:

- Sustainable Forest Management in a Changing Word (UBC)
- Forest Governance, Public Relations, & Community Development (UPLB)
- International Dialogue on Forestry Issues (UBC)
- Restoration of Degraded Forest Ecosystems & Forest Plantation Development (UM)
- Forest Resource Management and Protection (BFU)

This online program received national recognition, winning the Canadian National Award in “Excellence and Innovation in the Integration of Technology in Educational Practices/ Collaboration". This award recognizes excellence in innovative educational practices and use of technology to support and advance learning at regional, national, and international levels. Since 2016, the Executive Office of the Asia Pacific Forestry Education Coordination Mechanism (AP-FECM) at UBC has undertaken the responsibilities associated with running and maintaining the SFM online courses. In order to increase course publicity, a variety of strategies have been applied including the organization of instructor-directed sessions, promotion through AP-FECM member universities, in addition to project promotion at international events and via social media platforms. Currently, the online courses have attracted over 6,000 learners and 50,000 views from 91 countries worldwide.

Next Phase

Building upon the success of phase I, the project is entering its second phase that will give priority to developing new online courses on tropical forest management and upgrade the existing courses, ultimately establishing a systematic SFM online learning program to educate younger generation of forestry practitioners regionally and globally. A team-based approach will be used to ensure quality and diversity of the project development. An advanced Learning Management System will be embedded to better understand diverse learner's needs and learning behaviors. A more holistic course structure will be considered to integrate basic SFM knowledge modules with case studies or practical experience in specific regional contexts. In addition, emerging educational technology such as lab simulation, virtual field tour, 360° video, etc. will be applied to bring visualized practical experience for global learners. Wanting to increase the global recognition, we will operate the project continuously as open educational resources, meanwhile creating credential programs (Certificate, Master's degree) to attract a wider range of learners. All of these efforts will generate a long-term impact on forest education in the region and will contribute greatly to capacity building in SFM worldwide.

List of new courses in phase II:

COURSES	DEVELOPMENT TEAM
Silviculture, Plantation Design and Management (BFU)	*BFU team* *Dr. Damrong Pipatwattanakul, Kasetsart University, Thailand* *Dr. Steve Mitchell, UBC*
Tropical Forests Ecology (UBC)	*Dr. John Innes, UBC* *Dr. Terry Sunderland, UBC* *Dr. Su See Lee, Indonesia*
Geomatics in Forestry (Data Collection and Measurement) (UBC)	*Dr. Nicholas Coops, UBC* *Dr. Yong Pang, Chinese Academy of Forestry* *Dr. Cao Lin, Nanjing Forestry University*

Climate Modelling and Forest Application (UBC)	*Dr. Tongli Wang, UBC* *Dr. John Innes, UBC* *Dr. Guangyu Wang, UBC* *Dr. Brad Seely, UBC* *Dr. Shirong Liu, Chinese Academy of Forestry*
Carbon and REDD+ Forest Measurement and Reporting (UM)	*Dr. Chris Weston, UM* *Dr Luba Volkova, UM* *Dr. Gary Bull, UBC*
Natural Forest Management in the Tropics (University of Florida)	*Dr. Jack Putz, UF* *Dr. Verena Griess, UBC*
Sustainable Use of Forest Ecosystem Services and Community Livelihoods (UPLB)	*Dr. Juan M. Pulhin, UPLB* *Dr. Roberto B. Figueroa, University of the Philippines Open University* *Dr. Benjamin Cashore, Yale School of Forestry and Environmental Studies* *Dr. Naya Sharma Paudel, Forest Action Nepal* *Dr. Sarah Gergel, UBC*
Urban Forestry in the Asia Pacific Region (UBC)	*Dr. Cecil Konijnendijk, UBC* *Cheng Wang, China Academy of Forestry* *Wendy. Y. Chen, University Of Hong Kong*
Conservation in Asia (UBC)	*Dr. Guangyu Wang, UBC* *Dr. Anil Shrestha, UBC* *Dr. Intu Boedhihartono, UBC* *Dr. Xiaohua Wei, UBCO* *Dr. Jinming Hu, Yunnan University* *Dr. Futao Guo, University of Washington*
Backup: Wood Composites (Nanjing Forestry University)	*Dr. Xiaoyang Zhou, NFU team with professors* *Dr. Meng Gong, University of New Brunswick* *Dr. Qinglin Wu, Louisiana State University*
Backup: Water and Soil Conservation (Fujian A&F University)	*Dr. Xiangqing Ma, FAFU team with professors* *Dr. Fan-Rui Meng, University of New Brunswick* *Dr. Zhiqiang Zhang, Beijing Forestry University*

In the second phase, the existing five online courses will be upgraded and revised in line with the new course development standards designed for the future credential programs (Certificate, Master's degree).

Workshop

Objectives and Structure

This workshop aimed to cover many important topics that would help course development teams create valuable and meaningful online courses. It is essential for participants to understand the broader curriculum goals of the online course program, help develop the curriculum map for all the courses and to be able to incorporate best practices for online learning from teaching and learning approaches to the selection of learning technologies. In addition, participants had the opportunity to meet, collaborate and share experiences in teaching and online course development with colleagues from partner universities across the Asia-Pacific.

Topics included:

- Online distance education methodology and approaches
- Best teaching and learning practices for online distance education/online learning that support, for example, meaningful learning, experiential learning, signature pedagogies
- Most appropriate learning technologies, i.e., what technology best supports certain learning approaches
- Mapping the program curriculum and courses
- Intellectual property rights
- Importance of student wellbeing to support learning
- Learner assessment strategies including peer assessment

- Emerging technologies, e.g., one-button studio, lightboard, studio production, on-location productions, do it yourself and 360° video filming.

Date and Venue

The Forestry Online Course Development Workshop took place on July 30 to August 3 2018 at the University of British Columbia.

Participants

Institutions	Name
Beijing Forestry University	Yong Liu
	Xinna Zhang
	Dawei Yin
	Jie Duan
University of Melbourne	Chris Weston
	Luba Volkova
Kasetsart University, Thailand	Damrong Pipatwattanakul
University of the Philippines Los Banos	Juan M. Pulhin
	Roberto B. Figueroa
The University of British Columbia	John Innes
	Guangyu Wang
	Nicholas Coops
	Terry Sunderland
	Tongli Wang
	Michelle Zeng

	Anil Shrestha
	Cindy Cheng
	Lorien Nesbitt
	Weicong Fu
Nanjing Forestry University	Xiaoyan Zhou
	Jingquan Han
	Xinzhou Wang
	Lv Zhiying
Fujian A&F University	Futao Guo
	Xiaolong Hou
	Houxi Zhang
	Jianfeng Huang

Training Team and Presenters

UBC CTLT

Dr. Christina Hendricks, Academic Director, CTLT & Professor

Dr. Andrea Han, Associate Director, Curriculum and Course Services, CTLT

Chris Crowley, Manager, Learning Design, CTLT

Carrie Hunter, PhD Curriculum Consultant, CTLT

Hailan Chen, PhD Learning Designer, CTLT

Bosung Kim, PhD Learning Designer, CTLT

UBC Faculty of Forestry

Dr. John Innes, Dean, Faculty of Forestry & Chair of Asia Pacific Forestry Education Coordination Mechanism

Dr. Guangyu Wang, Associate Dean & Asian Strategies, Director of Asia Forest Research Centre, Faculty of Forestry

Michelle Zeng, Manager, Executive Office of AP-FECM & Online Course Running Manager, Faculty of Forestry

Anil Shrestha, Lecturer, Online Course Instructor & Research Coordinator, Faculty of Forestry

UBC Experts

Patty Hambler, Director, Health Promotion and Education, UBC Student Development & Services

Dr. Leah May Ver, Lecturer, Faculty of Science

Saeed Dyanatkar, Executive Producer, UBC Studios

Michael Sider, Producer, UBC Studios

Nadia Picco, Team Lead, UBC Studios

Peter James, Intellectual Property & Copyright, Librarian

Workshop Organization

Pre-Workshop Assignments

Prior to the workshop, the lead professors were required to prepare three pre-workshop assignments including the course outlines, detailed course schedules and graded assessments for students. In doing so, the UBC CTLT team were able to review the course structures and teaching activities in advance, to then provided advices on course development during the workshop.

Day 1:

Dr. John Innes, Dean, Faculty of Forestry and Dr. Christina Hendricks, Academic Director, CTLT started the workshop by welcoming the international participants on behalf of the Asia Pacific Forestry Education Coordination Mechanism and UBC. Dean Innes highlighted that

during the busy five days ahead, the workshop would open a profound conversation on course curriculum, student experience and online learning that would lead us into the creation of a series of new online courses that would increase accessibility to forestry education and benefit the Asia Pacific region in a long run.

Following, Dr. Guangyu Wang gave an overview of the Forestry Online Program. The main goal of the program is to create an online educational tool that promotes Sustainable Forest Management in the Asia Pacific region by providing the basis for a widely adopted core curriculum and by giving access an easily navigable platform that foster user's communication and knowledge sharing for everyone. While the Development Team, Technical Support Team and Operation Team all worked together to successfully complete phase one, getting the attention of over 6000 users and winning a Canadian National Award for Excellence in Innovation, the project is now entering phase two. Dr. Guangyu Wang announced that all courses would combine basic knowledge with region-specific case studies allowing for a more comprehensive approach. Together with the existing platform, phase two will lead the program towards the establishment of an online certificate, and ultimately of a widely accessible Master's Degree by 2021.

Chris Crowley, Learning Design Manger, introduced the Center for Teaching Learning and Technology (CTLT), which goal is to provide support to the Forestry online program in terms of curriculum design, pedagogy approach, emerging educational technology and postproduction. Today, it is estimated that one fifth of the higher education students in the world are enrolled in some distance education programs, taking part in a transnational movement where knowledge is becoming easy to access and borderless. The Forestry online program is in an important position to promote and advance forestry education worldwide.

Dr. Carrie Hunter, the curriculum consultant of CTLT, kicked off the workshop by revealing one of the key components – curriculum design in course development. She discussed the importance of program curriculum, the relationship of program level outcomes and course

learning outcomes, as well as the curriculum life cycle. Carrie guided the participants to outline the learning objectives of each course and further articulate them among the participants. It inspired the participants to reconsider their course development process and drew their focus on how to achieve learning outcomes.

Group Photo

Day 2:

Dr. Hailan Chen, a CTLT Educational Consultant, highlighted the expectations for phase two and proposed a structure that would move the program towards meeting those expectations. Dr. Chen's general recommendations pushed for a backward approach in the course creation process, always keeping in mind the desired results. Thus, a clear statement of the end goals of the courses, an effective measurement of how students are doing going with regards to

those goals as well as activities that are related to attaining those objectives are key aspects of a successful online pedagogical approach. Dr. Chen also encourages the participants of the workshop to reflect on the strategies, outcomes and possible changes that they should make in the case of their particular courses. She then proposed to bring back together online vs. traditional assessments through their similarities such as the alignment of their goals, the characteristics of their feedback processes as well as the features of their assessments. However, the divergences of the two delivery methods were also pointed out with differences in time management, clarity of the assignments, instructor responsibilities, feedback and workload. Furthermore, as with more traditional courses, it was highlighted that Active Learning should be put at the center of the program, following the Read, Reflect, Display, Do (R2D2) model. Dr. Chen concluded by providing participants with an Online Assessment Blueprint and an Online Unit Activity Planning Sheet for further reference during the creation of the phase two contents.

Michelle Zheng and Anil Shrestha, both part of the Operation Team, then proceeded to talk about their experience with regards to the implementation of phase one of the program. While they focused on the successes of the current open educational resources of the five self-study courses, they also highlighted the blended nature of teaching and learning, inherent to the educational platform created, that was built on perspectives from multiple universities and that combines self-study to video conferencing tutorials. They also brought into light the diversity of platforms used in managing the program, from UBC Blogs, to Piazza Discussion Forums, going through Google Analytics. Thanks to those tools, Michelle Zheng and Anil Shrestha were also able gather data, showing how the course traffic was higher during pilot sessions. They also concluded that most participants were undergraduate and graduate students that were familiar with the English language, that were looking for the International experience that such online courses could help provide but that never took part in a program of such format before. Michelle Zheng and Anil Shrestha then talked about the steps of the pilot sessions in the Piazza Forums in 2017 and compared it with the 2018 Pilot sessions in Canvas, the preferences the learners expressed and the knowledge that they gained. Finally, the two speakers concluded their

presentation by thinking of the challenges that would still need to be faced through phase two, from learner's retention, to the diversification of the contents (videos, graphics, and new technologies), going through the practical experience needed the possible change in the assessment approach and in the online management system.

Dr. Bosung Kim, an Educational Consultant of the CTLT, pursued the day by reflecting on Peer Assessment (PA), the process through which students provide feedback on other students' assignments. After the creation of their own work, PA enables students to be exposed to others' works, to evaluate it, while in return being able to receive feedback on their own production and to improve it. Dr. Bosung Kim then proceeded by highlighting the benefits both for students (learn to provide constructive feedback, to critically reflect on their work, etc.) and for the instructors (get insight on students understanding of the assignment, reduce the assessment workload, etc.). However, challenges of such method were also pointed out. In fact, PA can be time consuming when first implemented, can make students feel uneasy about assessing their peers and having their own work be assessed by their peers and, without proper guidance, students might also not be able to provide meaningful feedback. Dr. Bosung Kim further emphasized that having clear guidelines for students, clear logistics (anonymous or non-anonymous? Possibility of revision after submission? etc.) as well as enough student preparation and guidance would be key in successfully implementing PA in a course. To illustrate these points, past example from UBC classes were used, showing how PA can be successfully integrated into learning objectives, as in the case of a Sociology course, of a Japanese language course, and of a Visual Art class. Dr. Bosung Kim concluded by providing a list of resources to participants for further reference.

Day 3:

To enable the technical production of phase two of the program, UBC Studios gave tools for participants to create content.

In the pre-production phase, content makers should identify the roles that will be required for their projects, i.e. producer, writer/director, DP/Camera Operator, Location Sound Mixer, Editor and others as required. The video's purpose and its value proposition should be clearly put forward, and the specific goals and desired outcomes of the project should be pointed out. Singling out your audience in a targeted manner and looking for ways to catch and keep its attention is also a key concern for content makers. The right platforms and delivery mode should also be chosen with care in order to reach that audience: where will the video be viewed, how will it be accessed, what are the licenses in place and will it be shared are all questions that need to be answered before starting the creation process. In order to move forward, a resources assessment should be conducted with the aim of finding out what is available in terms of people and location but also to see whether the project is feasible with regards to its costs. When the creation process starts, a storyboard might be useful in visualizing the project, the different steps and the resources needed at each steps. From there, a re-assessment and correction of the needed assets can be done. The pre-production phase must necessarily be accompanied by a precise budget plan and time schedule. Finally, it is essential to research who owns the material you are using and to obtain written permission if it is not free of use in order to avoid the removal of your creation and possible legal actions.

During the production stage, each shoot should be planned. Thus the selection of a fitting camera is essential. While all cameras have advantages and disadvantages, they all require practice to get used to. In the same manner, good sound is important: the use of headphones while shooting, the proximity with the talent being shot, the employment of a wireless mic when in noisy locations… are all aspects that should be taken into account. In terms of lighting, a key main source should be combined with a filling source to erase the shadows created by the key source and with a back light to make the scene more three-dimensional. Color balance is another one of the variables in the production equation with blue wavelengths at noon and red waves at sunset. With automatic settings, the camera should adjust its settings to read the dominant light as white. The presenters also explained the different shots, from wide, to close up, going through medium and cut-away and emphasized on the importance of leaving

headroom in each shot. The Rule of Third was also explained to show how an image should be composed following certain guidelines, to create an aesthetically pleasing result. The presentation was concluded with a few interview tips about wardrobe, camera closeness to the interviewer, change of angles, etc.

Post-production is the final step of the content creation process. For that stage UBC Studios recommended to gather all assets in the same drive, with a main folders and sub-folders based on asset type (different types of assets are videos, audios, images, stock). The post-production work can be done using ProRES 422 and must be executed in the best possible quality, in 1080p HD and, if necessary, lower quality outputs can then be created. Graphics and typography must be simple, clean and consistent and they should be read on mobile devices. For stock footages, images and music, archive.org and wikicommons are great public domain resources and paid sources also have education pricing. Most of the editing work is done with timelines and multiple timelines should be created in order to keep options. In the same manner as the content, effects and transitions should be chosen in order to create simple outputs. There must also be a primary and a secondary supporting footage in order to facilitate the editing process and to cut around the primary roll. The presentation concluded with the introduction of methods to organize output content for editing and sharing, emphasizing the importance of a good file management system.

Photo in the field

Day 4:

In her presentation, Dr. Hailan Chen introduced guidelines for the content development of the online courses. While the importance of having diverse types of contents for different learning styles was highlighted, she also advocated for the organization of the content in weekly chunks before moving on to guidelines for each different formats. Dr. Chen also put forward the significance of choosing an appropriate form for the content presented.

She then focused on CTLT role in content development, encouraging leading professors in the program to contact instructional designers of the organization to start working on course overview, graded assignments, prototype learning topic content development and module by module development. Finally, she concluded her presentation with the overview of the phase two timeline and of further online course design resources such as the Quality Matter Rubric.

Day 5:

The last session of the workshop was focused around the topics of course content mapping, discussing the program objectives, the target students and the level of the courses. The central question on whether to approach phase two through fundamental or through advanced courses was also raised.

To conclude the workshop, Dean Innes emphasized the colossal developments that the program had seen through the last years, but also pointed remaining questions that will need to be addressed. The workshop thus provided participants with a good platform for course development, fostering teamwork and deepening the audience's knowledge in teaching and learning in an online environment. Further, it also strengthened a central element of AP-FECM's purpose, that of sharing experience with colleagues of partner universities. This workshop thus laid down a solid foundation for the development of this online course.

Workshop Outcomes

- Program objectives design

  The ultimate goal of the project is to create credential programs (Certificate and Master's degree) utilizing all online courses developed in the first and second phase. To this end, we need to determine the Program Level Outcomes (PLOs) in order to meet the requirements of credential programs. In the workshop, Courses Learning Objectives (CLOs) were captured and articulated against content of each course. It allowed course development teams to review and deepen understandings on the courses and the CLOs in order to decide the credential programs. Some of the PLOs identified in the workshop:

  At the end of the program, graduates will be able to:

  1. Communicate environmental and social values and related policies of tropical forest and urban forest ecosystems to a range of audiences;

2. Sustainably manage tropical forests, in the contexts of climate change, by applying, advanced analyzing, synthesizing and using science-based information and best practice protocols;
3. Recommend policy (lead, influencing, shaping) and action based on thorough knowledge of social, economic, biological factors that shape tropical forests (including urban forests) ecosystems.

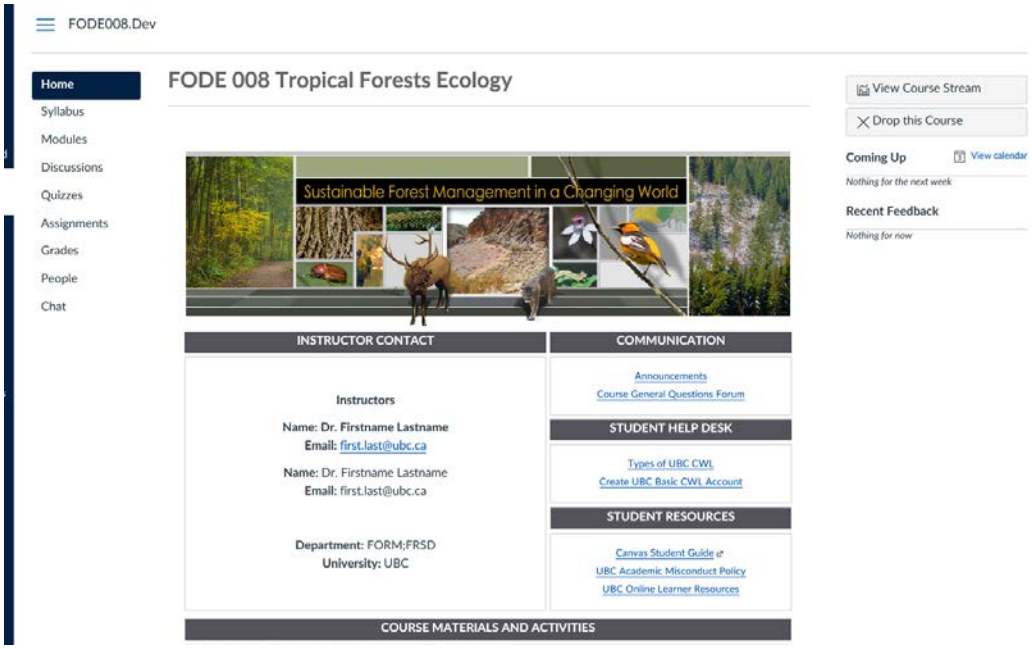
- Course content mapping – overlaps and interrelation among courses

  During the workshop, content areas and topics of each course including five existing courses and new courses were reviewed and mapped by participants. It was very useful for the development teams to identify where there were overlaps, omissions and opportunities for integration/coordination. For instance, Course *Sustainable Use of Forest Ecosystem Services and Community Livelihoods (UPLB)* and Course *Urban Forestry in the Asia Pacific Region* both have components on ecosystem services. After comparison and discussion, the teams realized their components would focus differently on local community services versus urban forestry perspective. There will be a good connection between these two courses that will likely be complementary to each other.

  In addition, conversations were also related to levels of course contents. Having solid experience in teaching, lead professors suggested to include fundamental and advanced knowledge in courses to educate learners who may not have sufficient forestry experience prior to taking the online courses.

Photo: Course Mapping Activities

- Understandings of the best practices and technologies in online teaching and learning
  Participants were exposed to various pedagogies, assessment strategies and available learning technologies to support their online course development over the workshop. In this phase, we are proposing to use a new platform – Canvas for delivering online courses. Canvas is more user-friendly, with many advanced tools to support course delivery and student management. It allows us to offer online courses for non-UBC students. A demo online course on Canvas was showcased to participants in the workshop. Participants expressed strong interests in using this platform.



Screenshot: Demo Course on Canvas

Emerging educational technologies were introduced to participants during the workshop. 360° video is one of the new technologies that can be applied to the content development such as virtual field trip or lab simulation. Participants were very keen to try these new technologies in the course development to enrich the learning experience.

Photo: 360° video and photo filming

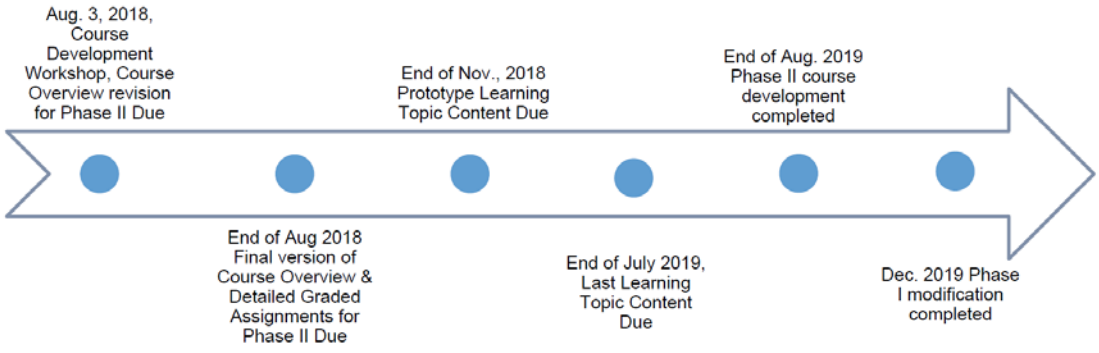
- Project timeline

  This is a three-year project with the first two years (March 2018 to December 2019) as preparation and course development stages. Project implementation referring to credential program operation will start from January 2020 until March 2021. Given this

project timeframe, participants agreed to finalize their course structures by the end of August 2018, to complete and to submit new course contents by July 2019. As far as the revision and upgrade of the five existing courses are concerned, it was approved that lead professors would complete the modifications before December 2019.

Overall Project Timeline

Course Development Timeline



- Certification

  Certificates were issued for participants to recognize their participation and contributions to the workshop as well as for acknowledging their involvement in the preparation of the course development.


Photo: Presentation of Certificates

Recommendations

- Course structure

  After thorough discussions over the workshop, a new standard for course structure was recommended by the Teaching and Learning experts from UBC and lead professors.

  - The courses must be at graduate level (first-year), 3 credits (100-120 total study hours).
  - The courses should combine with modules (I, II, III and IV) and case studies (V, VI, VII), course length should be 15 weeks.
  - The courses should include accessible, relevant, appropriate and different types of content materials to provide content rich learning and accommodate different learning styles.
    - Text
    - PPT
    - Mini video (Max. 10 minutes)
    - Infographic

- Audio (e.g. podcast)
- Online available content/resources (e.g. video, animation, simulation, OER)
- New reality experience (e.g. 360 video, virtual reality, augmented reality)

➢ The courses must incorporate measurable assessments with specific criteria provided for evaluation of student's performance.

➢ The courses need to integrate effective and well-organized teaching activities to encourage student's participation and generate learning in online environment.

- Project coordination

  Being a multi-national, multi-university collaborative project, it is necessary to have a central unit to manage communication and coordination throughout the project development. The Executive Office of Asia Pacific Forestry Education Coordination Mechanism has an important role to play to ensure the project implementation and operation.

Conclusion

The Forestry Online Course Development Workshop thus provided AP-FECM partners with tools to think and approach phase two of the Online Forestry Program. Thinking back on what has been achieved so far and looking at what could be improved with regards to the existing materials, this seminar was the opportunity to align future goals and assure a smooth collaboration between all of the phase two contributors. Although a few questions will need to be addressed along the way, the workshop was successful in launching the Forestry Online Course towards its next stage.