POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO, SRI LANKA

PROSPECTUS
MASTER OF MEDICAL EDUCATION

(To be effective from the year 2019)

SPECIALTY BOARD IN MEDICAL EDUCATION
BOARD OF STUDY IN MULTI-DISCIPLINARY STUDY COURSES

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Contents

This prospectus is made under the provisions of the Universities Act, the Postgraduate Institute of Medicine Ordinance, and the General By-Laws of the PGIM.

1. Nomenclature

Full title:	Master of Medical Education
Abbreviated title:	MMEd
University:	University of Colombo
Faculty / Institute:	Postgraduate Institute of Medicine
Departments:	Specialty Board in Medical Education of the Board of Study in Multidisciplinary Study Courses

2. Introduction

The role of the medical teacher is evolving, with advances in educational research and progress in the health care delivery system. Medical Education is rapidly developing with many innovations to meet these challenges.

The courses in Medical Education currently offered by the PGIM include a postgraduate certificate, a postgraduate Diploma, and MD and Board Certification. These study programmes have been designed in a structured stepwise manner to develop participants' competencies at a range of levels, in order to enable participants to design, conduct and evaluate effective educational programmes and research.

The training programme leading to the PG Diploma in Medical Education was introduced by the PGIM in 2012, with successful completion of the PG Certificate in Medical Education as the entry point. It was tailor-made for medical professionals involved in teaching allied health students, medical undergraduates, postgraduates, and / or in Continuing Professional Development, and who wish to pursue Medical Education.

The current amendment, considering the volume of learning and the full-time nature of the PG Diploma, with trainees assigned to an accredited training centre for completion of course work, converts the PG Diploma to a Master of Medical Education. With the introduction of the proposed MMEd, the current PG Diploma programme will be discontinued.

The MMEd will be at the Sri Lanka Qualifications Framework (SLQF) Level 9, with one year of full-time taught course work and the development of an original portfolio by a candidate.

3. Eligibility for entry into training programme

Prospective applicants must fulfill the following requirements, in any one of three categories:

A. Medical graduates

i. a medical degree (of SLQF level 7) registered with the Sri Lanka Medical Council and
ii. one year of internship recognized by the Sri Lanka Medical Council and
iii. one year of work experience, related to participation in educational activities as a teacher/trainer/supervisor, after internship and
iv. successfully completed the Postgraduate Certificate Course in Medical Education conducted by the PGIM, University of Colombo, Sri Lanka with a minimum GPA of 2.5.

B. Dental Science graduates

i. a dental science degree (of SLQF Level 6) registered with the Sri Lanka Medical Council and
ii. one year of internship recognized by the Sri Lanka Medical Council and
iii. one year of work experience, related to participation in educational activities as a teacher/trainer/supervisor, after internship
OR
iv. two years' work experience, related to participation in medical / health professions educational activities as a teacher/trainer/supervisor after graduation
AND
v. successfully completed the Postgraduate Certificate Course in Medical Education conducted by the PGIM, University of Colombo, Sri Lanka with a minimum GPA of 2.5.

C. Veterinary Science / Allied Health Science graduates / Science graduates

i. a Bachelor's Special / Honours degree in Veterinary Science, or Allied Health Sciences, or Science (of SLQF Level 6), and where applicable, registered with the Sri Lanka Medical Council or the Sri Lanka Nursing Council on the recommendation of the Ceylon Medical College Council, and
ii. three years' work experience, related to participation in medical/ health professions educational activities as a teacher/trainer/supervisor after graduation, and
iii. successfully completed the Postgraduate Certificate Course in Medical Education conducted by the PGIM, University of Colombo, Sri Lanka with a minimum GPA of 2.5.

These requirements must be fulfilled by the date of closure of applications.

4. Selection for training and number selected

Any applicant who fulfills the above criteria will be considered eligible for entry to the MMEd training programme.
An applicant holding a Certificate in Medical Education from a university in another country may be exempted from the last requirement to have successfully completed the PGIM's PgCME. Exemptions will be considered on a case-by-case basis, and will require approval of the Specialty Board, the Board of Studies in Multidisciplinary Courses, and the Board of Management of the PGIM.
Available training opportunities will be indicated by the PGIM in the public circular calling for applications. The number of training slots will be pre-determined each year by the Specialty Board in Medical Education, and approved by the Board of Study in Multi-Disciplinary Study Courses and the Board of Management.

5. Learning Outcomes and Competencies

The following outcomes and competencies are expected of holders of the MMEd degree:
Outcome 1: Instructional material developer

1. Design instructional strategies for different levels of learning

Outcome 2: Learning facilitator

2. Critically evaluate techniques that could be used to facilitate learning in different learning situations
3. Assist medical / health professions education programmes with educational leadership and management, staff development and continuing professional development

Outcome 3: Assessor

4. Design and evaluate assessments at different levels of complexity

Outcome 4: Curriculum planner

5. Design curricula for medical / health profession education programmes based on educational theories, current trends, quality assurance principles and contextual factors

Outcome 5: Mentor/counselor

6. Develop plans to mentor/counsel students to build the learner capacity
7. Foster an appropriate educational environment and support system for learners

Outcome 6: Educational programme evaluator

8. Evaluate medical education programmes/curricula using appropriate models of evaluation and based on national/international guidelines for curriculum evaluation

Outcome 7: Scholar/researcher/manager

9. Utilise best evidence in medical education for educational interventions
10. Apply basic research principles in the context of medical / healthcare professions education
11. Utilize appropriate ICT resources for educational interventions and research
12. Engage in their own continuing professional development

Details of each module (learning outcomes, learning objectives for each session, content areas, teaching-learning activities, assessments and recommended reading) are provided in **Annex 1**. **Annex 2** provides a matrix which shows the alignment between SLQF learning outcomes, program competencies, module outcomes, and session objectives.

6. Content areas

The broad content areas of study involve:

1. **Evidence-based medical education**: literature review, citation, referencing and plagiarism, academic writing, evidence-based medicine, best evidence medical education
2. **Instructional strategies for higher order abilities**: learning theories, Kolb's learning cycle and portfolio development, reflection and self-evaluation, clinical reasoning, moral reasoning, teaching-learning tools, problem-based learning, task-based learning, community based/oriented learning
3. **Academic support**: mentoring, other academic support, peer-assisted learning, social learning
4. **Advanced assessment**: assessing uncertainty at 'knows how' level, assessing uncertainty at 'does' level, standard setting and post-examination results analysis
5. **Curriculum development in practice**: methods of educational needs assessment, mastery learning as curriculum concept, core and options, transformational

education, constructive alignment, concepts of milestones and entrusted professional activities, adaptive curriculum, organizational culture in curriculum change, national and international policies applicable to medical education

6. **Educational leadership and management**: leadership in medical education, human resource development in medical education
7. **Curriculum evaluation in practice**: application of curriculum evaluation models and theories, quality assurance
8. **Medical education research**: introduction to research, introduction to quantitative study designs, basic statistics for quantitative data analysis, development and validation of proxy measures of educational constructs, introduction to qualitative research, developing a research proposal
9. **Integrated module on e-resources**: informatics for medical education, learning management systems, databases, data analysis

7. Structure of the training programme

The course will be of 12 months duration. It will consist of nine modules.

Table 1. Modular structure of the course with the teaching and learning duration

Module	Credits	Duration in hours			
		Total notional learning hours	Face-to-face teaching / learning	Self-study and supervisor meetings	Portfolio writing
1. Evidence-based medical education	3	150	24	72	54
2. Instructional strategies for higher order abilities	4	200	32	96	72
3. Academic support	2	100	16	48	36
4. Advanced assessment	4	200	16	64	120
5. Curriculum development in practice	4	200	16	64	120
6. Educational leadership and management	3	150	16	48	86
7. Curriculum evaluation in practice	2	100	16	48	36
8. Medical education research	4	200	32	96	72
9. Integrated module on e-resources	4	200	32	96	72
Total	**30**	**1500**	**200**	**632**	**668**

Details of how the above nine modules address the 12 competencies expected of the degree holder are provided in Table 2.

Table 2. Content breakdown of each module according to expected competencies

Competency	Content	Session	Module
1. Design instructional strategies for different levels of learning	Instructional strategies for encouraging problem solving and experiential learning	Practice based / oriented learning	Instructional strategies for higher order abilities
	Instructional strategies for developing clinical reasoning	Clinical and moral reasoning	
	Instructional strategies for fostering moral reasoning		
	Instructional strategies for encouraging learning by self-assessment and self-reflection	Self-assessment, self-reflection and feedback	
2. Critically evaluate techniques that could be used to facilitate learning in different learning situations	Peer learning Collaborative learning Social learning	The concept of 'learning community'	Academic support
6. Develop plans to mentor/counsel students to build the learner capacity	Mentorship and student support Mentoring, coaching and counseling	Mentoring and coaching Academic counseling versus psychological counseling	
4. Design and evaluate assessments at different levels of complexity	Assessments of problem solving, clinical and moral reasoning, and reflection	Assessment of dealing with uncertainty and reflection	Advanced assessment
	Psychometric analysis of assessments	Standard setting and post-exam results analysis	
5. Design curricula for medical / health profession education programmes based on educational theories, current trends, quality assurance principles and contextual factors	Models, theories and methods of needs analysis	Theoretical basis of curriculum development	Curriculum development in practice
	Mastery learning as curriculum concept Constructive alignment Adaptive curricula Core ad options	Educational needs analysis	
7. Foster an appropriate educational environment and support system for learners	Educational environment Gender equity Cultural diversity Accessibility and equal opportunities for disabled	Academic and professional environment	Educational leadership and management
3. Assist medical / health professions education programmes with educational leadership and management, staff development and continuing professional development	Transactional and translational leadership Change management Negotiation Conflict resolution	Leadership and management in medical education	
	Staff development Continuing professional education	Human resource development	

Competency	Content	Session	Module
8. Evaluate medical education programmes /curricula using appropriate models of evaluation and based on national/international guidelines for curriculum evaluation	Application of curriculum evaluation models and theories	Curriculum evaluation in practice	Curriculum evaluation in practice
	Quality assurance and qualification framework in Sri Lanka WFME standards	Quality assurance and accreditation	
9. Utilise best evidence in medical education for educational interventions	Using evidence in Medical education Using theory in medical education	Best evidence medical education	Evidence-based medical education
	Critical evaluation of the literature Effective management of references Reference management	Literature review and reference management	
10. Apply basic research principles in the context of medical / healthcare professions education	Philosophy of research Quantitative methodologies for medical education research Qualitative methodologies for medical education research	Research in Medical Education	Medical education research
11. Utilize appropriate ICT resources for educational interventions and research	Developing computer-based learning programme and supplementary material	Learning management systems	Integrated module on e-resources
	Quantitative data analysis using SPSS / R Qualitative data analysis using Atlas ti	Software for quantitative and qualitative data analysis	
	Using and management of data bases for medical education purposes	Informatics for medical education	
12. Engage in their own continuing professional development	Reflective practice and life-long learning	(Will be addressed in all modules and practiced by maintaining a portfolio)	

8. Method of delivery and strategies of study

A variety of methods including lectures, group work, presentations, case studies, reflective logs, e-learning and self-learning will be used to ensure maximum acquisition of knowledge, skills and attitudes. Lectures are the main method of face-to-face teaching in the first six months. A lecture comprises of a 4-hour session per week that imparts the core content of each module throughout the course. Workshops will be held once a month interspersed with the formal learning described above. Details of all the delivery methods are in **Annex 1**.
Trainees are expected to have a minimum of 80% attendance in the lecture discussions.
The learning methods will encourage the trainees to relate educational theory to their everyday educational practice. 'Field work' is specifically to promote hands on practice of theory, where the trainees are expected to apply the theory that they have learned during the course to practical educational settings; e.g. classroom teaching, clinical teaching, curriculum evaluation, designing of assessment. The evidence for applying theory to practice will be documented in a portfolio that the trainee develops. The trainers will also be the supervisors for portfolios. They will be specialists in Medical Education, and their appointments will be subject to the approval of the Specialty Board in Medical Education, Board of Study in Multi-Disciplinary Study Courses, and Board of Management of PGIM.
The strategies of study include both face-to-face teaching and non-face-to-face learning.
The face to face sessions include lectures, portfolio-writing workshops, and trainee-supervisor meetings during portfolio building. The lectures, other face-to-face teaching and learning methods, and workshops will be conducted at the PGIM, University of Colombo, or at a training institute recognized by the PGIM. The face-to-face supervision (i.e. trainee-supervisor meetings) will be conducted at the PGIM or on site at training centres.
The main non-face-to-face method is self-study, which will be supervised regularly by an assigned supervisor, i.e. the learning contracts and portfolio entries developed by the trainee, after discussing with the supervisor, must be approved by the supervisor before submission to the Specialty Board. Self-study will include reading around the subject, writing learning contracts, implementing the learning contracts, and writing portfolio entries. These activities, however, will be supervised by the portfolio supervisors. In the course of portfolio building, first, the trainees are expected to submit a learning contract for each module within 8 weeks of completing the face-to-face sessions for the module. Learning contracts should be submitted to the Specialty Board through the supervisor appointed by the Specialty Board. The learning contract is later converted to a portfolio entry, once the trainee carries out and documents the plan agreed upon through the learning contract. There will be a minimum of one learning contract (and hence a portfolio entry) for each course module.

9. Trainers and training units

Each trainee will have a supervisor (trainer) who is appointed by the Specialty Board. All supervisors, helping the trainees in the development of the portfolio, are expected to abide by the PGIM's *Guidelines for Supervisors of Dissertations and Theses* (**Annex 3**). Trainees will be assigned to the supervisors affiliated to training units that have been accredited by the PGIM for training in Medical Education.
Trainees are expected to acquaint themselves with PGIM rules and regulations and meet all requirements stipulated therein, that are relevant to the Master's programme, and also

follow the special guidelines and formats provided by the Master's programme, e.g. guidelines for portfolio building.

10. Master of Medical Education examination

10.1 Eligibility to submit the portfolio

Trainees are expected to submit the completed portfolio by a given deadline, 12 months after registering for the MMEd. Those who fail to meet this deadline will be given not more than 2 more opportunities to submit their completed portfolio, at 6 months and 12 months after the initial deadline.

For trainees (i.e. candidates) to be eligible to submit their portfolios, they should have achieved the following.

- Have 80% attendance at the face-to-face teaching sessions
- Have completed at least one portfolio entry for each module
- Have obtained the signature of the supervisor that the portfolio building was supervised by him/her

10.2 Assessment of portfolio

The examination will be portfolio-based, enabling the participants to apply the learned educational principles to their own situation and reflect and improve on their own practice. The portfolio should be developed according to the guidelines and the portfolio entry format prescribed by the Specialty Board and approved by the Board of Management of the PGIM and the Senate of the University (**Annex 4** and **Annex 5**).

Each entry in the portfolio will be assessed using structured rating scales (**Annex 6**). The assessment will consist of two parts, Part I and Part II. In Part I, the portfolio will be assessed independently by 2 examiners and awarded a score out of 80, based on the documented information in it. Candidates who score more than 40 out of 80 for Part I will face a structured oral examination; i.e. viva (Part II). The oral examination will be marked independently out of 20 by 2 examiners.

Each portfolio shall be assessed independently by two examiners appointed by the Specialty Board. Appointment of examiners is subject to the approval of the Specialty Board in Medical Education, Board of Study in Multi-Disciplinary Study Courses, Board of Management of PGIM and Senate of the University of Colombo.

10.3 Award of Master of Medical Education

To pass the entire portfolio examination and to qualify for award of the Master of Medical Education, a candidate should:

i. achieve an overall mark of **60 out of 100** for both Parts I and II
   AND
ii. **not score 0 for more than two** of the 24 scales in Parts I and II
   AND
iii. should **not score 0 for Authenticity of Work** in Part II.

10.4 Repeat examination

Feedback will be provided to the unsuccessful candidates. They could resubmit the portfolio within three months after the release of examination results. Once they have successfully

faced the above portfolio assessment part I and part II, these candidates will be eligible for the MMEd. Candidates will be allowed a maximum of 2 resubmissions.

11. Contributors to development of prospectus

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5. Prof Indika Karunathilake, Professor of Medical Education, Faculty of Medicine, University of Colombo
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Annex 1. Details of modules in the curriculum

MODULE CODE: 1

MODULE NAME: EVIDENCE-BASED MEDICAL EDUCATION

RELEVANT PROGRAMME OUTCOMES

- To apply basic research principles (in relation to reviewing the literature)
- To utilize best evidence in medical education for educational interventions
- To utilize appropriate ICT resources for educational interventions and research

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) search and select the literature from appropriate sources
(ii) show, synthesise and summarise the evidence in the literature for academic purposes
(iii) improve the skills of academic writing
(iv) conceptualise Evidence Based Medicine (EBM) and Best Evidence Medical Education (BEME)
(v) apply BEME in planning, developing or evaluating an educational intervention

CONTENT

Face-to-face sessions (8 h each)	Specific objectives	Broad content areas
Session 1.1	a) To describe the basic components and steps of performing a literature review b) To use relevant data bases in searching for the literature c) To perform a review the literature for academic purposes d) To describe different styles of referencing e) To use appropriate referencing methods in academic writing	• Literature review • Citation, referencing and plagiarism
Session 1.2	a) To be able to demonstrate basic skills of academic writing b) To be able to write a review and an abstract (A research proposal will be written as a part of research module)	• Academic writing
Session 1.3	a) To describe the principles of evidence-based medicine b) To evaluate the suitability of the principles of evidence-based medicine in the context of medical education	• Evidence-based Medicine
Session 1.4	a) To describe the principles of best evidence medical education b) To apply the principles of best evidence medical education in the context of medical education	• Best Evidence Medical Education

TEACHING AND LEARNING

- Face-to-face sessions
  - Plenaries
  - Group discussions
  - Small group activities
  - Individual tasks
- Self-study
  - Reviewing the literature on the topic

ASSESSMENT

Participants are expected to develop the following portfolio entry and include it in the portfolio (30 hours).

- Learning contract:

Select a learning experience (e.g. process of planning, development or evaluation of a specific educational intervention) with the agreement of the supervisor. Write a rationale for selecting the particular educational intervention. (250 words)

Tips:

- Discuss the contextual and practical importance of the topic selected for review
- References may be use in supportive of your arguments.

- Task:

Write a review of the literature on the topic / area selected above (2500 words)

Tips:

- You may prepare a matrix of the sources you review.
- At least 10 journal articles should be included in the review.
- Harvard style should be used in citations and preparing the reference list.

- Reflective account:

Reflect on the process of reviewing the literature based on the experience above (500 words)

Tips:

According to your experience above,

- What were your strengths and challenges of reviewing the literature?
- What were the challenges you overcome, i.e. what did you learn?
- What are the continuing challenges, i.e. what needs to be learned further?
- How do you overcome the continuing challenges, i.e. what is your plan for future learning?

RECOMMENDED READING

1. Harden M, Grant J, Buckley G, Hart, IR. (1999). BEME Guide No. 1: Best evidence medical education. *Medical Teacher*, *21*(6), 553-562.
2. Rosenberg, W., & Donald, A. (1995). Evidence based medicine: an approach to clinical problem-solving. *British Medical Journal*, 310(6987), 1122.
3. Birmingham City University (2011). Academic writing styles – Study Guide. Available at http://library.bcu.ac.uk/learner/writingguides/1.20.htm. Access on 13.02.2017
4. iParadigms, LLC (2014) Plagiarism. Available at http://www.plagiarism.org/. Accessed on 13.02.2017

MODULE CODE: 2

MODULE NAME: INSTRUCTIONAL STRATEGIES FOR HIGHER ORDER THINKING

RELEVANT PROGRAMME OUTCOMES

- Design instructional strategies for different levels of learning
- Utilize best evidence in medical education for educational interventions
- Utilize appropriate ICT resources for educational interventions and research
- Engage in their own continuing professional development

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) Design Instructional strategies for encouraging problem solving and experiential learning
(ii) Design Instructional strategies for developing clinical reasoning
(iii) Design Instructional strategies for fostering moral reasoning

CONTENT

Face-to-face sessions (8 h each)	Specific objectives	Broad content areas
Session 2.1	a) To evaluate the educational advantages of the portfolio development process.	• Learning theories • Kolb's learning cycle and portfolio development • Reflection and self-evaluation
Session 2.2	a) To evaluate the current methods used to teach clinical and moral reasoning b) To propose changes to existing methods based on best evidence medical education	• Clinical reasoning (diagnostic and therapeutic reasoning) and moral reasoning
Session 2.3	a) To design and promote the use of assessments for learning	• Teaching learning tools- traditional apprenticeship and cognitive apprenticeship (mentoring/ coaching/ Expert feedback), – work-based assessment tools, Case based discussions, mini-CEX, multisource feedback , communities of practice/ peer feedback, reflection and self-assessment
Session 2.4	a) To design PBL sessions and task based learning sessions for selected components of the curriculum b) To evaluate the community orientation of the existing curriculum in one's institution and propose measures to enhance community orientation and opportunities for community based learning	• PBL, TBL, CBL/community oriented learning

TEACHING AND LEARNING

Plenaries
Group discussions
Small group activities
Individual tasks

ASSESSMENT

Students are expected to develop a minimum of two portfolio entries.

Tips

Select suitable curriculum content and develop learning material for PBL, TBL, or CBL
Develop material to promote self-assessment, clinical and moral reasoning, self -reflection and further learning
Evaluate existing curriculum of one's institution and teaching learning methods using the BEME
A proposal for implementing teaching methods which enhance higher order thinking in your context and stakeholder feedback should be included.

To pass the module

1. A minimum of two portfolio entries are required. Should demonstrate learning through literature by including at least 6 references
2. A proposal for implementing teaching methods which enhance higher order thinking in your context with stakeholder feedback should be submitted.

RECOMMENDED READING

1. Harden, R.M. Laidlow, J.M. 2017*. Essential skills for a medical teacher. An introduction to teaching and learning in Medicine.* Edinburgh: Elsevier.
2. Dent J.A. Harden R.M. (2005). *A practical guide for medical teachers.* Edinburgh: Elsevier
3. Kassirer, J., Wong, J. & Kopelman, R. (2010) *Learning clinical reasoning.* Baltimore: Lippincott Willioms & wilkins. Chapter 1 & 7
4. Kaufman, D. M. & Mann, K. V. (2010) Teaching and learning in medical education: how theory can inform practice. In: *Understanding Medical Education: Evidence, Theory and Practice*, eds.Swanwick, T. Ch. 2 West sussex: Wiley-Blackwell.
5. Morris, C. & Blaney, D. (2010) Work-based learning. In: Swanwick, T. (Ed.). *Understanding Medical Education: Evidence, Theory and Practice*, Ch. 5 West Sussex: Wiley-Blackwell.

MODULE CODE: 3

MODULE NAME: ACADEMIC SUPPORT

RELEVANT PROGRAMME OUTCOMES

- Design instructional strategies
- Critically evaluate techniques that could be used to facilitate learning in different learning situations
- Develop plans to mentor/counsel students to build the learner capacity

- Advocate on educational environment
- Utilize best evidence
- Utilize appropriate ICT resources

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) discuss different mentorship models/ practices and their effectiveness and challenges in medical education contexts
(ii) discuss the principles of clinical supervision and supporting trainees in difficulty
(iii) discuss the principles of peer assisted learning and the different learning models/practices and their effectiveness and challenges in medical education contexts
(iv) advocate for student support and peer/ team interactions in medical education contexts
(v) design educational experiences to support students and facilitate collaborative learning

CONTENT

Face-to-face sessions (8 h each)	Specific objectives	Broad content areas
Session 3.1	a) To discuss different mentoring roles and responsibilities in medical education contexts b) To analyse the mentoring relationships and the necessary attributes in own situation(s) c) To recognize learners in difficulty and academic/situational challenges facing them d) To discuss appropriate remedial, counselling and support strategies for diverse learners e) To discuss the principles of clinical supervision in relation to trainees in difficulty f) To plan mentoring and academic support mechanisms in own setting(s) g) To apply the principles of mentoring, supervision and academic support in their routine educational practice	• Mentoring - Roles and attributes of a mentor - Types of and stages of mentoring relationships - Designing and evaluating mentoring programs • Other academic support - Remedial programs and supporting 'fast' learners - handling adjustment issues and professional dilemmas in learners - Supervision and dealing with trainees in difficulty in clinical settings
Session 3.2	a) To discuss the principles of peer assisted learning and social learning as applied to medical education	• Peer assisted learning - peer learning strategies and practices - principles of cooperative learning, group dynamics

	b) To discuss learner challenges in learning communities and communities of practice c) To discuss situated learning, interprofessional education in relation to peer learning d) To identify learning situations and learner characteristics supporting and impeding collaborative learning in varied contexts e) To develop educational experiences and learning activities in their own setting based on social learning theories, learner characteristics and contextual factors	- collaborative learning and teamwork behaviours • Social learning - social learning theories and practices - supporting learners in communities of practice - supporting transitions in medical education

TEACHING AND LEARNING

- Face-to-face sessions
  - Plenaries
  - Group discussions
  - Small group activities
  - Individual tasks
- Self-study:
  - Reviewing the literature on the topic

ASSESSMENT

Participants are expected to develop the following portfolio entry and include it in the portfolio.

- Learning contract

Task:

Plan a mentoring/academic support strategy incorporating peer assisted learning for a selected educational program

Process:

Explore the current situation in academic support and peer assisted learning in the selected program/ institution by reviewing curricular documents, interviewing students/ staff as well as by reflecting on your own experiences as a learner and a teacher. Subsequently, design an academic support programme to identify learners in difficulty and support them through a variety of educational strategies including peer assisted learning. Discuss the design with the student counsellor and academic/clinical coordinator in the selected institution and receive feedback. (2000 words)

Participants should draw on previous learning at certificate and diploma level e.g. curriculum development and evaluation, lesson planning in developing this learning contract

Tips: Review and critically evaluate the literature on the topic
Suggest measures based on the evidence and feasibility/ practicality

- Reflective account:

Reflect on the possible challenges with mentors and peers a student may encounter in the planned program, and how you would support student(s) as a mentor. (1000 words)

Tips: According to your experience above,

- What are your strengths and areas for improvement as a mentor and learning facilitator?
- What is your plan for future learning and professional development?

RECOMMENDED READING

1. Frei, E., Stamm, M., & Buddeberg-Fischer, B. (2010). Mentoring programs for medical students-a review of the PubMed literature 2000-2008. *BMC Medical Education*, 10(1), 32.
2. Iqbal, M., Velan, G. M., O'Sullivan, A. J., & Balasooriya, C. (2016). Differential impact of student behaviours on group interaction and collaborative learning: medical students' and tutors' perspectives. *BMC Medical Education*, 16(1), 217.
3. Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998). Cooperative learning returns to college what evidence is there that it works? *Change: The Magazine of Higher Learning*, 30(4), 26-35.
4. Kilminster, S., Cottrell, D., Grant, J., & Jolly, B. (2007). AMEE Guide No. 27: Effective educational and clinical supervision. *Medical Teacher*, 29(1), 2-19.
5. Sambunjak, D., Straus, S. E., & Marušić, A. (2006). Mentoring in academic medicine: a systematic review. *JAMA*, 296(9), 1103-1115.
6. Sambunjak, D., Straus, S. E., & Marusic, A. (2010). A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *Journal of General Internal Medicine*, 25(1), 72-78.
7. Topping, K. J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher Education*, 32(3), 321-345.
8. Wadoodi, A., & Crosby, J. R. (2002). Twelve tips for peer-assisted learning: a classic concept revisited. *Medical Teacher*, 24(3), 241-244.

MODULE CODE: 4

MODULE NAME: ADVANCED ASSESSMENT

RELEVANT PROGRAMME OUTCOMES

- Design and evaluate assessments at different levels of complexity
- Utilise best evidence in medical education for educational interventions
- Apply basic research principles in the context of medical / healthcare professions education
- Utilize appropriate ICT resources for educational interventions and research
- Engage in their own continuing professional development

INTENDED LEARNING OUTCOMES OF THE MODULE

At the end of this module the student should be able to:

(i) Develop assessment tools to assess uncertainty at 'knows how' and 'does' levels

(ii) Evaluate an assessment an assessment using the principles of validity and reliability indices
(iii) Select with justification a suitable standard setting method for a given assessment
(iv) Apply suitable standard setting method for a given assessment

CONTENT

Face-to-face sessions	Specific objectives	Broad content areas
Session 4.1 (two 8-hour sessions)	a) Select with justification (based on best evidence from literature) assessment methods to assess uncertainty at 'knows how' level b) Develop assessment tools to assess uncertainty at 'knows how' level c) Select with justification assessment methods to assess uncertainty at 'does' level d) Develop assessment tools to assess uncertainty at 'does' level e) Critique the advantages and limitations of assessment tools in assessing uncertainty f) Critique the validity and reliability of an assessment tool in assessing uncertainty, using post-exam item-analysis	**Assessment of dealing with uncertainty and reflection** Assessing uncertainty at 'know how' level • Context-rich SBAs • EMIs • Assessing clinical and moral reasoning: script-concordance test • Evaluating validity and reliability using post-exam item analysis; i.e. difficulty index, discrimination index and point biserial, Cronbach's alpha, introduction to generalizability theory Assessing uncertainty at 'does' level: • Case-based discussion • Assessment of reflection
Session 4.2 (two 8-hour sessions)	a) Select with justification the appropriate standard setting method/s for a given assessment b) Apply an appropriate standard setting method for an assessment that assesses cognitive domain c) Apply an appropriate standard setting method for an assessment that assesses psychomotor and affective domains d) Critique the advantages and limitations of the available standard setting methods	**Standard setting and post-exam results analysis** • Standard setting: an overview • Test-centred standard setting methods • Examinee-centred standard setting methods

TEACHING AND LEARNING

- Lecture discussions
- Class presentations followed by group discussions
- Self-learning assignments/exercises (formative)
- Reflective writing assignment

ASSESSMENT

Portfolio entry:

Any entry/entries that addresses the module and programme outcomes and the content of the two sessions would be acceptable.

For example, a typical entry could be:

A. Describe an experience where proper assessment of uncertainty would have been useful. Reflect how assessment of uncertainty would have helped in this situation. Select with justification, and design an SBA/EMI/SCT to suit the situation that was described. Depending on the said situation, assign course content and learning outcomes for the question you developed to assess uncertainty at 'knows how' level. Either implement the question to a group of students or request a colleague to comment on this question, to show how this assessment would have helped in the situation described above.
B. Like in 'A' above, develop a portfolio entry on case-based discussion in relation to an appropriate learning experience to assess uncertainty at 'does' level.
C. Describe a learning experience (e.g. an examination) where standard setting would have been helpful. Reflect on how implementation of standard setting would improve the situation in the above learning experience. Suggest a standard setting method and show (by providing evidence) how the concerns related to the initial learning experience could be allayed by implementing the said standard setting method.

RECOMMENDED READING

1. Case, S.M., & Swanson, D.B. (2001). *Constructing written test questions for basic and clinical sciences*. 3rd Ed. Philadelphia, USA: National Board of Medical Examiners (NBME). Retrieved January 17, 2017 from http://www.nbme.org/PDF/ItemWriting_2003/2003IWGwhole.pdf
2. Downing, S.M. (2003). Validity: on the meaningful interpretation of assessment data. *Medical Education*, 37, 830–837.
3. McKinley D.W., & Norcini, J.J. (2013). Standard setting. In: Walsh K. (Ed.). *Oxford Textbook of Medical Education*. (pp. 421-431). UK: Oxford University Press.
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5. Ponnamperuma, G. (2013). Workplace-based assessment. In: Walsh K. (Ed.). *Oxford Textbook of Medical Education*. (pp. 537-548). UK: Oxford University Press.
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MODULE CODE: 5

MODULE NAME: CURRICULUM DEVELOPMENT IN PRACTICE

RELEVANT PROGRAMME OUTCOMES

- Design instructional strategies for different levels of learning
- Design and evaluate assessments at different levels of complexity
- Design curricula for medical/health profession education programmes based on educational theories, current trends, quality assurance principles and contextual factors
- Evaluate medical education programmes/curricula using appropriate models of evaluation and based on national/international guidelines for curriculum evaluation
- Utilize best evidence in medical education for educational interventions
- Engage in their own continuing professional development

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) Perform an educational needs assessment
(ii) Apply concepts in curriculum designing in practice for a particular academic setting
(iii) Design educational experiences based on an adaptive curriculum facilitating a range of learning approaches and styles
(iv) Analyze the implications of organizational and national policies on curriculum development

CONTENT

Face-to-face sessions	Specific objectives	Broad content areas
Session 5.1.1	a) To describe different methods of performing an educational needs assessment (e.g. Delphi technique, stakeholder analysis, SWAT analysis) b) To use appropriate method in performing an educational needs analysis for a selected academic institution. c) To describe strengths and weaknesses of different educational needs assessment methods	• Different methods of educational needs assessment
Session 5.1.2	a) To describe the evolution of mastery learning b) To describe features of mastery learning c) To describe core and options in terms of mastery of learning d) To apply mastery learning as a principle in curriculum planning e) To use core and options in curriculum designing	• Mastery learning as curriculum concept • Core and options
Session 5.1.3	a) To describe the principles of transformative education b) To use principles of transformative education in curriculum planning	• Transformative education • Constructive alignment

	c) To apply principles of transformative education in facilitating inter-professional learning d) To apply principles of transformative education in facilitating life-long learning	
Session 5.2.1	a) To describe EPAs b) To describe the link between EPAs, milestones and competencies c) To develop EPAs appropriate for a given situation	• Concepts of milestones and entrusted professional activities (EPAs)
Session 5.2.2	a) To describe the core characteristics of an adaptive curriculum b) To use adaptive curriculum concepts in designing a student-centred learning experiences	• Adaptive curriculum
Session 5.2.3	a) To describe the impact of organizational culture in imparting curriculum change b) To demonstrate the ability to respond to resistance in curriculum change	• Organizational culture in curriculum change: Case studies
Session 5.2.4	a) To describe guidelines, minimum standards and quality assurance in terms of Sri Lankan Higher Educational System b) To describe standards in medical education acceptable in the world arena (e.g. WFME) c) To design curriculum aligned with national and international norms and guidelines in higher education and medical education.	• National and international policies applicable to medical education

TEACHING AND LEARNING

- Face-to-face sessions
  - Plenaries
  - Group discussions
  - Small group activities
  - Individual tasks
- Self-study:
  - Curriculum planning

ASSESSMENT

Participants are expected to develop the following portfolio entry and include it in the portfolio: Develop a curriculum including the principles of Mastery learning, adaptive curriculum, transformative education and milestones

- Learning contract:

Select a training program the trainee is familiar with and rationalize the need for a curriculum change for the selected program of study. (250 words)

- Task:

Design and develop a mini curriculum for the chosen training program. The trainee is expected to critically discuss various concepts, models and strategies in terms of its applicability in his or her own setting. Specifically, the trainees are expected to focus on

principles of mastery learning, adaptive curriculum, transformative education and milestones as appropriate. The developed curriculum should be justified in terms of national policies related to higher educational institutions in Sri Lanka (2500 words)

- Reflective account:

Reflect on the process of developing a medical education curriculum based on the experience above (500 words)

RECOMMENDED READING

Davis, M. H., & Karunathilake, I. (2004). The adaptive curriculum. *Medical teacher*, *26*(6), 501-503.

Genn, J. M. (2001). AMEE Medical Education Guide No. 23 (Part 2): Curriculum, environment, climate, quality and change in medical education–a unifying perspective. *Medical teacher*, *23*(5), 445-454.

Grant, J. (2002). Learning needs assessment: assessing the need. BMJ, 324(7330), 156-159.

Jervis, L. M., & Jervis, L. (2005). What is the constructivism in constructive alignment? *Bioscience Education*, *6*(1), 1-14.

Kaufman, D. M., & Mann, K. V. (2010). Teaching and learning in medical education: how theory can inform practice. *Understanding medical education: Evidence, theory and practice*, 7-29.

Tackett, S., Grant, J., & Mmari, K. (2016). Designing an evaluation framework for WFME basic standards for medical education. *Medical teacher*, *38*(3), 291-296.

Ten Cate, O. (2005). Entrustability of professional activities and competency-bases training. *Medical education*, *39*, 1176-1177.

MODULE CODE: 6

MODULE NAME: EDUCATIONAL LEADERSHIP AND MANAGEMENT

RELEVANT PROGRAMME OUTCOME

- To assist medical / health professions education programmes with educational leadership and management, staff development and continuing professional development
- To utilise best evidence in medical education for educational interventions
- To utilize appropriate ICT resources for educational interventions and research
- To design curricula

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) discuss different leadership models/ theories and their effectiveness in medical education context
(ii) apply principles of change management in the context of medical education
(iii) develop negotiation skills
(iv) apply the principles of conflict resolution in the context of medical education
(v) plan staff development activities in the institution he/she is in

(vi) propose continuing professional development activities for teaching staff in his / her institution.

CONTENT

Face-to-face sessions (8 h each)	Specific objectives	Broad content areas
Session 6.1	a) To discuss different leadership styles in the context of medical education b) To discuss leadership theories as applied to healthcare context c) To discuss the principles of change management in medical education d) To discuss the principles of negotiation in the context of medical education e) To discuss the principles of conflict resolution in the context of medical education f) To analyse leadership dilemmas based on leadership theories and principles of change management, negotiation and conflict resolution. g) To apply the theories of leadership and the principles of change management, negotiation and conflict resolution in their routine educational practice	• Leadership in medical education - Transactional and translational leadership styles - Change management - Negotiation skills - Conflict resolution
Session 6.2	a) To define staff development and continuing professional development in the context of health professions education b) To discuss the principles of staff development and continuing professional development in the context of life-long learning as applied to medical education c) To develop staff development activities and continuing professional development activities in their own setting based on educational theories, the principles of staff development and continuing professional development and contextual factors	• Human resource development in medical education - Staff development - Continuing professional education

TEACHING AND LEARNING

- Face-to-face sessions
  - Plenaries
  - Group discussions
  - Small group activities
  - Individual tasks
- Self-study:
  - Reviewing the literature on the topic

ASSESSMENT

Participants are expected to develop the following portfolio entry and include it in the portfolio (30 hours).

- Learning contract:

Explore the available staff development / CPD opportunities which exist in a given setting. Perform a SWOT analysis. Develop a proposal for introduction or improvement of staff development / Continuing Professional Development activities in that institution. Discuss the proposal with the head / coordinator of staff development in the selected institution and receive feedback on your proposal. In the final proposal, discuss how the leadership and management principles can be used to engage the target groups in the proposed activity (2000 words)

Tips:

- Review and critically evaluate the literature on the topic
- Suggest measures based on the literature and practicality

- Reflective account:

Reflect on the process of formulating the above proposal (1000 words)

Tips:

According to your experience above,

- What were your strengths and challenges of formulating the proposal?
- What were the challenges you had overcome, i.e. what did you learn?
- What are the continuing challenges, i.e. what needs to be learned further?
- How do you overcome the continuing challenges, i.e. what is your plan for future learning?

RECOMMENDED READING

1. Careau, E., Biba, G., Brander, R., Van Dijk, J. P., Verma, S., Paterson, M., & Tassone, M. (2014). Health leadership education programs, best practices, and impact on learners' knowledge, skills, attitudes, and behaviors and system change: a literature review. *Journal of Healthcare Leadership*, *6*, 39-50.
2. Clenney, E. F., Maurer, T. J., & Miles, E. W. (2013, January). Becoming a Negotiator: A Proposed Negotiation Skill Development Complexity Model. In: *Academy of Management Proceedings* (Vol. 2013, No. 1, p. 11509). Academy of Management.
3. Eagly, A. H., Johannesen-Schmidt, M. C., & Van Engen, M. L. (2003). Transformational, transactional, and laissez-faire leadership styles: a meta-analysis comparing women and men.
4. Fernandez, C. S., & Roberts, D. (2015). Strengthening Negotiation Skills, Part I: How to Use Facets of Knowledge to Create Influence for Public Health Leaders. *Journal of Public Health Management and Practice*, *21*(2), 214-216.
5. Frich, J. C., Brewster, A. L., Cherlin, E. J., & Bradley, E. H. (2015). Leadership development programs for physicians: a systematic review. *Journal of General Internal Medicine*, *30*(5), 656-674.

6. Hall, L. W., & Zierler, B. K. (2015). Interprofessional Education and Practice Guide No. 1: developing faculty to effectively facilitate interprofessional education. *Journal of Interprofessional Care*, *29*(1), 3-7.
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8. Steinert, Y., Naismith, L., & Mann, K. (2012). Faculty development initiatives designed to promote leadership in medical education. A BEME systematic review: BEME Guide No. 19. *Medical Teacher*, *34*(6), 483-503.

MODULE CODE: 7

MODULE NAME: CURRICULUM EVALUATION IN PRACTICE

RELEVANT PROGRAMME OUTCOMES

- Evaluate medical education programmes/curricula using appropriate models of evaluation and based on national/international guidelines for curriculum evaluation
- Utilise best evidence in medical education for educational interventions
- Apply basic research principles in the context of medical / healthcare professions education
- Utilize appropriate ICT resources for educational interventions and research
- Engage in their own continuing professional development

INTENDED LEARNING OUTCOMES OF THE MODULE

At the end of this module the student should be able to:

(i) Compare the different curriculum evaluation models
(ii) Evaluate curriculum development models based on their underlying rationale, principles and theories
(iii) Select with justification the appropriate evaluation model/s for a given curriculum
(iv) Apply suitable curriculum evaluation model/s for a given assessment

CONTENT

Face-to-face sessions (8 h each)	**Specific objectives**	**Broad content areas**
Session 7.1	a) Explain the link between curriculum development and curriculum evaluation models b) Compare the stages of different curriculum evaluation models c) Select with justification a curriculum evaluation model/s for a given curriculum d) Utilize/develop appropriate data collection tools to evaluate the said curriculum	**Application of curriculum evaluation models and theories** • Curriculum-based evaluation models: Harden's 10 questions • Process-based evaluation models: CIPP model, RUFDATA • Outcome-based evaluation models: Kirkpatrick's model

	e) Analyze data collected from the above tools using appropriate methods f) Write an evaluation report for the selected curriculum for evaluation	• Evaluating curricula using quantitative and qualitative methods, suitable for each Kirkpatrick level.
Session 7.2	a) Compare and contrast the components of a QA system b) Compare and contrast the different QA systems; e.g. SLQF, WFME, etc. c) Discuss the pitfalls of implementation of QA process d) Devise methods to overcome the pitfalls of the QA process	**Quality Assurance (QA)** • SLQF • WFME Standards

TEACHING AND LEARNING

- Lecture discussion
- Class presentations followed by group discussions
- Self-learning assignments/exercises (formative)
- Reflective writing assignment

ASSESSMENT

Portfolio entry:

Any entry/entries that addresses the module and programme outcomes and the content of the two sessions would be acceptable.

For example, a typical entry could be:

Describe a learning experience in relation to a curriculum that you have been associated with. Reflect on this experience to identify that proper evaluation of the curriculum would improve the situation in the initial learning experience. Draw up an evaluation plan for the said curriculum and show (with evidence) how the implementation of this evaluation plan would address the concerns you described in the initial learning experience.

RECOMMENDED READING

1. Basic Medical Education WFME (World Federation of Medical Education) Global Standards for Quality Improvement. (2003). WFME Office, University of Copenhagen, Denmark.
2. Cheng, Y.C., & Tam, W.M. (1997). Multi-models of quality in education. *Quality Assurance in Education*, 5(1), 22-31. DOI: https://doi.org/10.1108/09684889710156558
3. Cook, D. A. (2010). Twelve tips for evaluating educational programs. *Medical Teacher*, 32, 296–301.
4. Goldie, J. (2006). AMEE Education Guide no. 29: Evaluating educational programmes. *Medical Teacher*, 28(3), 210–224.
5. Harden, R.M. (1986). Ten questions to ask when planning a course or curriculum. *Medical Education*, 20, 356-365.
6. Kirkpatrick, D. (1996). Revisiting Kirkpatrick's four-level model. *Training and Development*, 50(1), 54–59.
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10.1007/s11092-010-9098-7
8. Saunders, M. (2000). Beginning an evaluation with RUFDATA: Theorizing a Practical Approach to Evaluation Planning. Evaluation, 6(1), 7-21. DOI: https://doi.org/10.1177/13563890022209082
9. Sri Lanka Qualifications Framework (SLQF). (2015). University Grants Commission (UGC), Sri Lanka. December 2015. Retrieved 17 January 2017 from: http://www.eugc.ac.lk/qaa/wp-content/uploads/2016/07/SLQF_Book_2016_new.pdf

MODULE CODE: 8

MODULE NAME: MEDICAL EDUCATION RESEARCH

RELEVANT PROGRAMME OUTCOME

- To utilise best evidence in medical education for educational interventions
- To apply basic research principles in the context of medical / healthcare professions education
- To utilize appropriate ICT resources for educational interventions and research

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) describe philosophies of research
(ii) apply the principles of ethics in the context of medical education research
(iii) formulate research questions / hypothesis for educational research
(iv) propose quantitative and qualitative study designs for education-related research questions and hypotheses
(v) outline the analysis of quantitative and qualitative data
(vi) develop proxy measures, e.g. questionnaire-based tools, of educational concepts
(vii) develop a comprehensive proposal for a research project related to medical / healthcare professions education

CONTENT

Face-to-face sessions	Specific objectives	Broad content areas
Session 8.1	a) To discuss basic philosophical underpinning of research b) To discuss principles of ethics as applied to medical education research c) To identify researchable problem d) To discuss the principles and steps of developing research questions, hypothesis and objectives for a research project e) To translate a researchable problem in health professions education in to a research project with the understanding of philosophical underpinning, ethical principles and essential steps in	• Introduction to research - Philosophy of research - Ethics for medical education research - Developing research questions / hypothesis and objectives

	formulating research questions / hypothesis and objectives	
Session 8.2	a) To discuss the quantitative research designs as applied to health professions education b) To discuss basic statistical methods of analysing quantitative data as applied to health professions education c) To interpret quantitative analyses of data in the context of health professions education considering the practical significance and impact d) To apply the understanding of research designs and methods of quantitative analysis of data in investigating a research hypothesis / question in health professions education	• Introduction to quantitative study designs • Basic statistics for quantitative data analysis
Session 8.3	a) To discuss the basic principles of developing tools / questionnaires as methods of data collection b) To discuss types of validity and methods of establishing validity of proxy measures / questionnaires c) To formulate a proxy measure / questionnaire as a tool of data collection in a given research project	• Development and validation of proxy measures of educational constructs
Session 8.4	a) To discuss the qualitative research designs as applied to health professions education b) To discuss qualitative methods of data collection and analysis of data as applied to health professions education c) To interpret qualitative data in the context of health professions education considering the practical significance and impact d) To apply the understanding of research designs and methods of qualitative data analysis in investigating a research question in health professions education	• Introduction to qualitative research - Basic designs in qualitative research - Analysis of qualitative data
Meeting with supervisors	a) To develop a proposal for an appropriate research project in health professions education applying the principles of research	• Developing research proposal

TEACHING AND LEARNING

- Face-to-face sessions
  - Plenaries
  - Group discussions
  - Small group activities
  - Individual tasks
- Meetings with supervisors and self-study

ASSESSMENT

Participants are expected to develop the following portfolio entry and include it in the portfolio.

Develop research question or questions / hypothesis to explore an area related to medical / healthcare profession education with the agreement of the supervisor. Write a rationale for selecting the particular research question / hypothesis.

Tips:

- Discuss the contextual and practical importance of the area selected for research
- References may be use in supportive of your arguments

- Task:

Formulate a comprehensive research proposal on the topic / area selected above (2500 words)

Tips:

- You may use the template discussed in the face-to-face sessions
- At least 10 journal articles should be included in the proposal.
- Harvard style should be used in citations and preparing the reference list.

You need to receive feedback on the above proposal and make changes accordingly. You may consider supervisor feedback in your reflection (Please see below).

- Reflective account:

Reflect on the process of formulating the research proposal based on the above experience (500 words)

Tips:

According to your experience above,

- What were your strengths and challenges of formulating a research proposal?
- What were the challenges you had to overcome, i.e. what did you learn?
- What are the continuing challenges, i.e. what needs to be learned further?
- How do you overcome the continuing challenges, i.e. what is your plan for future learning?

RECOMMENDED READING

1. Bunniss, S., & Kelly, D. R. (2010). Research paradigms in medical education research. *Medical Education*, *44*(4), 358-366
2. Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. Routledge.
3. Schifferdecker, K. E., & Reed, V. A. (2009). Using mixed methods research in medical education: basic guidelines for researchers. *Medical Education*, *43*(7), 637-644.
4. Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Healthcare*, *19*(6), 349-357.

5. Rattray, J., & Jones, M. C. (2007). Essential elements of questionnaire design and development. *Journal of Clinical Nursing*, *16*(2), 234-243.
6. Rees, C. E., & Monrouxe, L. V. (2010). Theory in medical education research: how do we get there? *Medical Education*, *44*(4), 334-339.

MODULE CODE: 9

MODULE NAME: INTEGRATED MODULE ON E-RESOURCES

RELEVANT PROGRAMME OUTCOME

- Utilize appropriate ICT resources for educational interventions and research
- Engage in their own continuing professional development

INTENDED LEARNING OUTCOMES OF THE MODULE

By the end of this module the participants should be able to:

(i) identify and classify different e-resources available in medical education
(ii) critically evaluate the appropriateness of different e-resources for current medical education practices
(iii) use selected e-resources to enhance learning, assessment, administration and research activities
(iv) develop a proposal by identifying issues/problems related to current medical education practices and propose a solution depicting a systematic approach while preserving/ensuring originality and creativity.

CONTENT

Face-to-face sessions (8 each)	**Specific objectives**	**Broad content areas**
Session 9.1	a) Describe multimedia instructional design principles and theories b) Describe the concepts learning communities and social learning networks in terms of new technologies (e.g. social media, m-learning, simulation, robotics) usable in medical education c) Evaluate computer supported collaborative learning (CSCL) in terms of medical education d) Apply principles of learning in adopting ubiquitous learning technologies in practice	• Informatics for medical education
Session 9.2	a) Demonstrate basic skills in using popular authoring tools (e.g. PowerPoint, Articulate storyline, Camtasia, Adobe presenter) in creating electronic instructional material b) Demonstrate advance knowledge and skills in managing an online learning management system (e.g. Moodle)	• Learning management systems
Session 9.3	a) Describe commonly used electronic databases that are usable for medical education related research.	• Databases

	b) Demonstrate basic skills in searching for literature using electronic databases c) Create bibliographies using electronic bibliographic managers	
Session 9.4	a) Describe commonly used electronic tools for data analysis b) Demonstrate the basic skills in performing quantitative data analysis using SPSS and R c) Demonstrate basic skills in performing qualitative data analysis using Atlas Ti	• Data analysis

TEACHING AND LEARNING

Face-to-face sessions

- Plenary
- Group sessions
- Supervised lab sessions

Self Study

ASSESSMENT

Participants are expected to develop an e-portfolio entry that can be included to the main portfolio. They should engage in a reflective process by addressing:

- The learning contract:

Recognize and justify the use of an electronic/robotic technology to improve teaching/learning, assessment or institutional practices in relation to medical education (250 words).

- Task:

Design and implement a technology driven intervention as recognized earlier in your own setting that would improve the current practices.

- Reflective account:

Reflect on the process of selecting, designing, implementing and evaluating (reflecting) a technology driven intervention in a medical education setting (500 words)

RECOMMENDED READING

1. Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. Taylor & Francis.
2. Van Merriënboer, J. J., & Sweller, J. (2010). Cognitive load theory in health professional education: design principles and strategies. *Medical Education*, *44*(1), 85-93.
3. Candler, C. (2007). Effective use of educational technology in medical education. In *Colloquium on educational technology: recommendations and guidelines for medical educators. Washington, DC: AAMC Institute for Improving Medical Education*.
4. Masters, K., Ellaway, R. H., Topps, D., Archibald, D., & Hogue, R. J. (2016). Mobile technologies in medical education: AMEE Guide No. 105. *Medical Teacher*, *38*(6), 537-549.

Annex 2. Alignment between SLQF, MMEd and module outcomes, and session objectives

SLQF Learning Outcomes

1. Subject / Theoretical Knowledge
2. Practical Knowledge and Application
3. Communication
4. Teamwork and Leadership
5. Creativity and Problem Solving
6. Managerial and Entrepreneurship
7. Information Usage and Management
8. Networking and Social Skills
9. Adaptability and Flexibility
10. Attitudes, Values and Professionalism
11. Vision for Life
12. Updating Self / Lifelong Learning

Program competencies (PC)	1. Design instructional strategies	2. Critically evaluate learning techniques	3. Develop plans to mentor/ counsel	4. Design and evaluate assessments	5. Design curricula	6. Advocate on educational environment	7. Assist in educational leadership and management, staff development and CPD	8. Evaluate curricula	9. Utilize best evidence	10. Apply basic research principles	11. Utilize appropriate ICT resources	12. CPD
SLQF outcomes	1-12	5	3,4,8, 9,10	1-12	1-12	3-12	3-12	1, 2,5	2,5,7,12	2,5,7,12	3,7	7,11,12
Module 1 outcomes									(ii) (iii) (iv) (v)	(i) (ii)	(i) (ii) (iii)	
Session 1.1 objectives										(a) (b) (c) (d) (e)	(a) (b) (c) (d) (e)	
Session 1.2 objectives										(a) (b)	(a) (b)	
Session 1.3 objectives									(a) (b)		(a) (b)	
Session 1.4 objectives									(a) (b)		(a) (b)	

Program competencies (PC)	1. Design instructional strategies	2. Critically evaluate learning techniques	3. Develop plans to mentor/ counsel	4. Design and evaluate assessments	5. Design curricula	6. Advocate on educational environment	7. Assist in educational leadership and	8. Evaluate curricula	9. Utilise best evidence	10. Apply basic research principles	11. Utilize appropriate ICT resources	12. CPD
SLQF outcomes	1-12	5	3,4,8, 9,10	1-12	1-12	3-12	3-12	1, 2,5	2,5,7,12	2,5,7,12	3,7	7,11,12
Module 2 outcomes	(i)-(iii)								(i)-(iii)		(i)-(iii)	(i)-(iii)
Session 2.1 objectives									a		a	a
Session 2.2 objectives	b								a, b		b	a
Session 2.3 objectives	a								a		a	a
Session 2.4 objectives	a, b								a, b			
Module 3 outcomes	(v)	(iii)	(i) (ii) (v)			(iv)			(i) (iii)		(i) (iii)	
Session 3.1 objectives	(d)		(a) (b) (e)			(c) (f)			(f) (g)		(f) (g)	
Session 3.2 objectives		(a) (c)				(b) (e)			(d) (e)		(d) (e)	
Module 4 outcomes				(i) (ii) (iii) (iv)					(i) (ii) (iii) (iv)	(i) (ii) (iii) (iv)	(i) (ii) (iii) (iv)	(i) (ii) (iii) (iv)
Session 4.1 objectives				(a)(b)(c)(d)(e)					(a)(b)(c)(d)(e)	(a)(b)(c)(d)(e)	(a)(c)(e)	(a)(c)(e)
Session 4.2 objectives				(a)(b)(c)(d)					(a)(d)	(a)(b)(c)(d)	(a)(b)(c)(d)	(a)(d)
Module 5 outcomes		i		(ii),(iii)	(i)-(iv)			(i)	(I)-(iv)		(iv)	(iii)
Session 5.1.1 objectives		b		b	a-c			a				
Session 5.1.2 objectives					a-e				d			b,d

Program competencies (PC)	1. Design instructional strategies	2. Critically evaluate learning techniques	3. Develop plans to mentor/ counsel	4. Design and evaluate assessments	5. Design curricula	6. Advocate on educational environment	7. Assist in educational leadership and management, staff	8. Evaluate curricula	9. Utilise best evidence	10. Apply basic research principles	11. Utilize appropriate ICT resources	12. CPD
SLQF outcomes	1-12	5	3,4,8, 9,10	1-12	1-12	3-12	3-12	1, 2,5	2,5,7,12	2,5,7,12	3,7	7,11,12
Session 5.1.3 objectives					a-d				c			
Session 5.2.1 objectives					a-c				c			
Session 5.2.2 objectives					a,b				b			
Session 5.2.3 objectives					a,b							
Session 5.2.4.objectives					a-c	a,b						
Module 6 outcomes							(i) - (vi)		(ii) -(vi)		(v) (vi)	
Session 6.1 objectives							(a) - (g)		(f) (g)		(f) (g)	
Session 6.2 objectives					(c)		(a) - (c)		(c)		(c)	
Module 7 outcomes				(ii) - (iv)				(i)	(i) (ii) (iii) (iv)	(ii) (iii) (iv)	(i) (ii) (iii) (iv)	(i) (ii) (iii) (iv)
Session 7.1 objectives								(a)-(f)	(c)-(f)	(d)(e)(f)	(c)-(f)	(c)- (f)
Session 7.2 objectives								(a)-(d)	(b)(c)(d)	(b)(c)	(b)(c)(d)	(a)-(d)
Module 8 outcomes									(i) (vii)	(i)- (vii)	(iv)-(vii)	
Session 8.1 objectives									(e)	(a) - (e)	(e)	
Session 8.2 objectives									(d)	(a) - (d)	(b) - (d)	

Program competencies (PC)	1. Design instructional strategies	2. Critically evaluate learning techniques	3. Develop plans to mentor/ counsel	4. Design and evaluate assessments	5. Design curricula	6. Advocate on educational environment	7. Assist in educational leadership and management, staff	8. Evaluate curricula	9. Utilise best evidence	10. Apply basic research principles	11. Utilize appropriate ICT resources	12. CPD
SLQF outcomes	1-12	5	3,4,8, 9,10	1-12	1-12	3-12	3-12	1, 2,5	2,5,7,12	2,5,7,12	3,7	7,11,12
Session 8.3 objectives									(b)	(a)-(c)	(c)	
Session 8.4 objectives									(d)	(a)-(d)	(b) - (d)	
Module 9 outcomes	iii										i - iv	iii, iv
Session 9.1 objectives	(a)	(c), (d)									(a), (b), (c), (d)	
Session 9.2 objectives											(a), (b)	
Session 9.3 objectives									(a), (b), (c)		(a), (b), (c)	(b)
Session 9.4 objectives										(a), (b), (c)	(a), (b), (c)	(b), (c)

Annex 3. PGIM guidelines for supervisors of dissertations / theses

Introduction

A supervisor plays a key role in the trainee's professional development, inculcating the scientific approach, and ethics of research. Practically, a supervisor is responsible for providing help, support and mentoring of a postgraduate trainee in order to enable the trainee to complete the research and produce a thesis to the best of the trainee's ability. Supervisor behavior needs to reflect varying levels of direction and facilitation. The supervisor should possess recognized subject expertise, skills and experience to monitor, support and direct trainee research and the final preparation of the dissertation / thesis.

Roles and responsibilities

1. Ensure development of good rapport with the trainee and a conducive environment.
2. Be familiar with the guidelines on the format of the dissertation / thesis and PGIM rules / regulations.
3. Ensure that the administrative requirements are met with.
4. Ensure that the trainee is aware of and complies with PGIM, University and Institutional and other internationally accepted policies and regulations regarding relevant safety procedures and ethics.
5. The supervisor should have good knowledge of the trainee's subject area.
6. If a trainee's work goes outside the supervisor's field, the trainee should be put in touch with another specialist who could help.
7. Ensure that the trainee chooses an appropriate topic, draws up the research proposal and completes necessary procedures for registration and ethical approval.
8. Guide the trainee to carry out the research project ensuring that appropriate instruments are available and appropriate quality assurance methods are used for data collection.
9. The nature of the supervision can be face-to-face meetings, or contact via email / fax / telephone and reading of submitted material.
10. There should be regular face-to-face supervisory sessions between the trainee and supervisor.
11. Provide sufficient time in order to enable the trainee to complete the task.
12. There will probably be a need for more intensive supervision in the initial planning stage and at the writing-up stage. However, the supervisor should meet the trainee at least once a month, or more frequently when required.
13. The recommended minimum total time allocation for supervision of a full-time research trainee is at least 60 hours per year.
14. The supervisor should read and critically comment on written work as it is produced.
15. Assist the trainee to plan their time, draw up a programme of work and monitor the progress.
16. Inform the Board and make appropriate arrangements if the supervisor plans to take more than 2 months of leave, or intimate that supervision can be continued although on leave.
17. Inform the Board promptly (with a copy to the Director /PGIM) of issues that may arise related to the trainee or research.
18. Submit a progress report every 6 months to the PGIM.
19. Ensure that the trainee is made aware, if either progress of the standard of work is unsatisfactory, and arrange corrective action.

20. It is the responsibility of the supervisor to ensure that the trainee himself has obtained all data, and carried out the investigations / procedures and performed relevant statistical analyses.
21. Closely monitor the research work, results obtained, and allocate sufficient time and effort to discussion and interpretation of the trainee's results. Ensure that the data obtained by the trainee is accurate and reliable, and that it has not been copied from any other source.
22. Ensure that the trainee has access to current literature, including local research work in the area, and stays abreast of cutting-edge ideas in the relevant field.
23. Encourage the trainee to participate actively in seminars, colloquia, conferences, and other relevant local meetings and conferences in the local training unit, or at national level, in relevant areas.
24. Help trainees to develop professional skills in writing reports, papers and grant application proposals.
25. Assist in the development of a trainee's thesis from early stage of designing, until the dissertation is written and submitted in accordance with the stipulated requirements and regulations.
26. The supervisor should read the final copy of the dissertation fully before submission and certify that it has been written by the trainee and no-one else, with data collected only by him.

Annex 4. Guidelines for portfolio submission

An accurate assessment of trainee's performance and achievements is one of the most important aspects in postgraduate training. Portfolios are recognized as effective educational tools for such assessment purposes. They provide, an opportunity for trainees to reflect on and self judge their strengths and weaknesses, establish learning contracts with their supervisors and to address the gaps in their knowledge and skills. Through the maintenance of portfolios, it is possible to assess a range of curriculum outcomes that are not easily assessed by other methods.

Method

The portfolio should contain a collection of papers and other forms of evidence that learning has taken place in terms of the learning outcomes of the course/module. It should be a collection of trainee's work that exhibits their efforts, progress and achievements in each module. By definition, any material that provides evidence for achievement of the above learning outcomes of the course could be included in the portfolio. Each portfolio entry should be structured according to Kolb's reflective cycle. To put simply, each portfolio entry should address the following questions in relation to a learning experience that the trainee has experienced.

Trainee guidelines and procedure for assessment of portfolio

1. Your learning contract should be based on a real life learning experience, analyzed in terms of what has been discussed on the Medical Education course.
2. Your learning experience is what you have encountered as a teacher.
3. Based on reflection on your learning experience, you have to decide what more you can learn.
4. Now plan your learning contract. Please note that you learning contract has a reflective component to it.
5. Submit/email your learning contract to the supervisor and to PGIM (for the purpose of record keeping), by 2 weeks of completing the module.
6. If it has not reached the standard revise it further, based on the supervisor feedback. Submit when the supervisor thinks it is suitable to be submitted to PGIM.
7. You will now go on to implement the learning contract, and gather the evidence for such implementation and achievement of course outcomes with the help of the supervisors. Once you document the evidence you have completed the reflective cycle.
8. You will now submit this as a portfolio chapter, comprising introduction, what have been done, conclusion, and bibliography.
9. You should demonstrate what learning outcomes of the module were achieved through the chapter.

Annex 5. Format of portfolio entry

Learning Contract

1. What is/was the learning experience?
2. What did I learn?
3. What more do I have to learn?
4. How can I learn it? What is my PLAN for further improvement?
   Regarding this PLAN,
   a) What do I expect to happen as a result to students?
   b) What do I expect to happen as a result to me?
   c) What are the possible module/programme outcomes that I will achieve through this learning contract?
5. Include appropriate educational theory relevant to the learning plan above
6. Include evidence of further learning/implementation of change of practice
   List and attach the supporting documents to be used as evidence
7. List the module objectives or/and programme outcomes that I have addressed by this activity
8. Conclusions

Signature of Participant: …… Date: ……..
Signature of Peer (Optional)…… Date: ……..
Signature of Trainer…… Date:……..

Annex 6. Rating scales for assessment of portfolio

Part I - Portfolio assessment form

Index number: .....

Please encircle the appropriate cell for each item below.

A. Reflective ability

Rating descriptors: 0 – no reflection; i.e. has not completed the reflective cycle
1 – reflected at a descriptive level; i.e. merely described the learning experience
2 – reflected at an analytical level; i.e. analysed the reasons for the experience and the reasons for the outcome
3 – reflected at an evaluative level; i.e. evaluated how the outcome(s) would have been different if a different course of action was taken
4 – reflected at an evaluative level and has provided **high** quality evidence for implementing the action plan

1. Portfolio entry 1

0	1	2	3	4

2. Portfolio entry 2

0	1	2	3	4

3. Portfolio entry 3

0	1	2	3	4

4. Portfolio entry 4

0	1	2	3	4

5. Portfolio entry 5

0	1	2	3	4

6. Portfolio entry 6

0	1	2	3	4

7. Portfolio entry 7

0	1	2	3	4

8. Portfolio entry 8

0	1	2	3	4

9. Portfolio entry 9

0	1	2	3	4

B. Coverage of module outcomes

Rating descriptors: 0 – less than 20% of the outcomes adequately covered
1 – 20-40% of the outcomes adequately covered
2 – 41-60% of the outcomes adequately covered

3 – 61-80% of the outcomes adequately covered
4 – 81-100% of the outcomes adequately covered

1. Portfolio entry 1

0	1	2	3	4

2. Portfolio entry 2

0	1	2	3	4

3. Portfolio entry 3

0	1	2	3	4

4. Portfolio entry 4

0	1	2	3	4

5. Portfolio entry 5

0	1	2	3	4

6. Portfolio entry 6

0	1	2	3	4

7. Portfolio entry 7

0	1	2	3	4

8. Portfolio entry 8

0	1	2	3	4

9. Portfolio entry 9

0	1	2	3	4

C. Overall presentation of the portfolio; e.g. layout, structuring of chapters, structuring within chapters, writing ability (including proper referencing)

0	2	4	6	8

Very poor Excellent

Total (out of 80): .....

Guideline for examiners

1. Two examiners will independently mark a given portfolio.
2. In part A, consider all the rating scales as global ratings; e.g. even if a candidate has not composed the whole portfolio entry at an evaluative level, if the examiner is satisfied that most of the steps in Kolb's cycle have been accomplished at an evaluative level, such a candidate is eligible for a rating of 4.
3. For a given entry, if the two examiner ratings for part A are different, then the examiners need to discuss and come to a consensus about the appropriate rating; e.g. for a given portfolio entry, if an examiner has given a rating of 2 or above for part A, while the other examiner's initial rating has been otherwise (e.g. grade 2 or below),

then the examiners should discuss about such an entry and arrive at a consensus rating.

4. In part B, if the percentage number of outcomes covered gives rise to decimals, round off the percentage before deciding on the rating.
5. Interpret 'adequately' in the descriptors in part B as covering an outcome to an extent that can possibly and reasonably be covered (need not be 100% coverage) given the nature of the portfolio entry; i.e. it should not be superficial coverage of an outcome, considering the potential to cover that outcome, given the portfolio entry.
6. The expected minimum standards for Part I are: 2 for each entry in part A (16 marks); 3 for each entry in part B (24 marks); and 12 for part C. Please bear these critical scores in mind when marking each entry.
7. Before the commencement of actual marking, it is highly advisable that all examiners mark and discuss the same portfolio entry as a dry run.
8. If a candidate has included more than one portfolio entry for a given chapter, such a candidate is entitled to the entry that has the highest average rating, to be considered as the portfolio entry for that part. In such a situation the scores of part A, part B and part C for a given chapter may come from different portfolio entries.
9. A candidate who has scored more than 40 will be eligible to face the oral examination.

Part II - Portfolio assessment oral examination

Eligibility criteria: a candidate who has scored ***more than 40 out of 80*** for part I of the portfolio assessment.

Index number: .....

Please encircle the appropriate cell for each item below.

1. Authenticity of work

0	1	2	3	4

0 Evidence of plagiarism
1 Replication of the work of someone else, but properly referenced
2 Adaptation from the work of someone else; properly referenced
3 Original work with limited applicability beyond the given portfolio entry
4 Original work with wide ranging applicability

2. Communication skills

0	1	2	3	4

0 Unable to communicate an idea
1 Communicates unclearly
2 Communicates clearly, but some of the content is not relevant
3 Communicates clearly and relevantly but not in the proper sequence
4 Communicates relevant material clearly and in the proper sequence

3. Reasoning skills

0	1	2	3	4

0 Cannot indicate the reasons for including a given portfolio item
1 Can give only limited reasons

2 Can give sufficient reasons, but cannot justify the reasons if challenged
3 Can reason and justify
4 Can reason, justify and analyse the strengths and weaknesses of own reasoning

4. Ability to apply learning beyond the portfolio item

0	1	2	3	4

0 Cannot indicate the situations that the learning from a given portfolio item can be used
1 Can identify situations with limited relevance that the learning from a given item can be useful
2 Can identify relevant situations that the learning form a given item can be useful
3 Can identify relevant situations and the components of learning (from a given portfolio item) that can be useful for such situations
4 Can identify relevant situations and the pros and cons of applying the learning to those situations

5. Global rating (including attitudes and professionalism with which the oral examination was taken)

0	1	2	3	4

Total (out of 20) .....

Guideline for examiners

1. Two examiners must mark the above scales independently.
2. Each candidate will be examined for 20 minutes.
3. Examiners should mark the above marking sheet at the end of the 20 minutes.
4. All questions must be based on items from the candidate's portfolio.
5. Each question must be focused on the aspects addressed by 1 to 4 scales above.
6. Only a maximum of two questions may be asked on the same portfolio item.
7. The two examiners should ask questions alternatively.
8. Each scale should be marked independently.

Conversion of portfolio total score to the overall grading

Score range	Grade	Close mark
<40	Fail	1
40-60	Borderline	2
60-75	Pass	3
75-90	Very good pass	4
90-100	Excellent pass	5

Award of Master of Medical Education

To pass the entire portfolio examination and to qualify for the Master of Medical Education, a candidate should:

i. achieve an overall mark of **60 out of 100** for both parts I and II

AND

ii. **not score 0 for more than two** of the 24 scales in parts I and II

AND

iii. should **not score 0 for Authenticity of Work** in Part II.