



[Biomedical Engineering or BME]  
Final Assessment Report &  
Implementation Plan

|                      |  |   |
|----------------------|--|---|
|                      | MESc, PhD  |   |
| Approved Fields      | Current:   | <ul style="list-style-type: none"> <li>• Biomaterials</li> <li>• Biomechanics,</li> <li>• Imaging and Robotics</li> </ul>             |
|                      | Proposed:  | <ul style="list-style-type: none"> <li>• Biomaterials,</li> <li>• Biomechanics,</li> <li>• Imaging</li> <li>• Mechatronics</li> </ul> |
| External Consultants | Dr. Zarah Moussavi<br>Director, Biomedical Engineering Program<br>University of Manitoba<br>CRC, Professor of Electrical and Computer Engineering                                      | Dr. Michael Noseworthy<br>Co-Director, School of Biomedical Engineering   |
|                      |  | N/A   |
| Date of Site Visit   | April 23-24, 2019  |   |
| Evaluation           | Good Quality   |   |
| Approval Dates       | SUPR-G: September 16, 2019<br>SCAPA: October 2, 2019<br>Senate (FYI only): October 11, 2019<br><small>This section will be completed by SGPS or Associate University Secretary</small> |   |
| Date of Next Review  | Year of next cyclical review 2026-2027   |   |

In accordance with Western’s Institutional Quality Assurance Process (IQAP), the Final Assessment Report provides a summary of the cyclical review, internal responses and assessment and evaluation of Graduate Program delivered by the School of Biomedical Engineering (as of Fall 2019). This report considers the following documents: the program’s self-study, the external consultants’ report and the responses from the Department/School and Faculty. The Final Assessment Report identifies the strengths of the program, opportunities for program enhancement and improvement and details and prioritizes the recommendations of the external consultants and prioritizes those recommendations that are selected for implementation.

The Implementation Plan details the recommendations from the Final Assessment Report that are selected for implementation, identifies who is responsible for approving and acting on the recommendations, any action or follow-up that is required and the timeline for completion.



The program response to the review, like the brief, was meticulously prepared. The program addressed every recommendation expressed in the review, and prepared a table showing all proposed actions.

The review took place shortly before the inauguration of the School of Biomedical Engineering. This structural change, in tandem with the introduction of a new five-year undergraduate concurrent degree program (two BESC degrees, a BESC in Chemical, Mechanical, or Mechatronic Engineering and a BESC in Biomedical Engineering) will bring new attention to biomedical engineering at Western. During their site visit and in their report, the external reviewers commented on the energy and strength of the BME graduate program. Anticipation of the inauguration of the new School of Biomedical Engineering undoubtedly added to the excitement about BME that was experienced by all during the review.

To conclude this executive summary, I will quote the following statement from the reviewers' report that effectively (and poetically) summarizes their positive view of the program: "Biomedical engineering *should* be the application of engineering to the human condition, be it normal or diseased. The faculty and their students unquestionably strive for such work."

#### Significant Strengths of the Program

The following program strengths are identified in the self-study and the External Consultants' Report

- High priority placed on interdisciplinary knowledge and oral and written communication skills
- Faculty research excellence
- Outstanding, state-of-the-art lab facilities
- Clarity of program learning outcomes
- Energy for patient outcomes in various fields of BME research

#### Summary of the Reviewers' Key Recommendations

|  | Reviewers' Recommendation  | Program/Faculty Response   |
|--|--|--|
|  | Add learning outcomes to website and student handbook.   | Learning Outcomes will be added to graduate program updates on the new School of BME website.      |
|  | Faculty member websites should consistently include links to publications.                     | Encourage faculty members to include a link to a publication database on their personal web pages. |
|  | Increase administrative assistance by hiring a second, part-time, graduate program coordinator | Recruit and hire the already approved part-time program coordinator.                               |

## Implementation Plan

The Implementation Plan provides a summary of the recommendations that require action and/or follow-up. The Graduate Program Chair and/or Department Chair/Director, in consultation with SGPS and the Dean of the Faculty will be responsible for enacting and monitoring the actions noted in Implementation Plan. The details of progress made will be presented in the Deans' Annual Planning Document.

| Recommendation  | Proposed Action and Follow -up   | Responsibility  | Timeline       |
|---|--|---|----------------|
| Review faculty membership in BME program on a regular basis.  | Establish an Appointments Committee and procedures for reviewing graduate program membership   | Director and School Operations Committee              | December 2019  |
| Review content and assessments for core BME courses.          | Review and revise content and outcomes of BIOMED 9550A/B and 9560B, Communications I and Communications II in terms of their learning outcomes. Review and revise the scope and assessments of BIOMED 9508A in terms of balance of factual knowledge and application or synthesis of concepts. | Associate Director, Graduate and Curriculum Committee | May 2020       |
| Make comprehensive exam timelines transparent and consistent. | Recommend a minimum interval between planning and completion of the comprehensive exam to supplement the   | Associate Director, Graduate and Program Coordinator  | September 2019 |

| Recommendation | Proposed Action and Follow -up | Responsibility |
|----------------|--------------------------------|----------------|
|----------------|--------------------------------|----------------|