

# Table of Contents

Preface.....	xv
<b>Section 1</b>	
<b>Chapter 1</b>	
Aligning Course Content, Assessment, and Delivery: Creating a Context for Outcome-Based Education .....	1
<i>Ruth A. Streveler, Purdue University, USA</i>	
<i>Karl A. Smith, Purdue University, USA</i>	
<i>Mary Pilote, Purdue University, USA</i>	
<b>Chapter 2</b>	
A Case Study of Curriculum Development in Engineering: Insights Gained over Two Decades.....	27
<i>Duncan Fraser, University of Cape Town, South Africa</i>	
<b>Chapter 3</b>	
Changing the Curriculum to Problem-Based and Project-Based Learning .....	50
<i>Anette Kolmos, Aalborg University, Denmark</i>	
<b>Chapter 4</b>	
A Guide to the Art of Crafting Engineering Problems for Problem-Based Learning (PBL).....	62
<i>Mohammad Zamry Jamaludin, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Khairiyah Mohd-Yusof, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Nor Farida Harun, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Syed Ahmad Helmi, Universiti Teknologi Malaysia, Malaysia</i>	
<b>Section 2</b>	
<b>Chapter 5</b>	
Curriculum Initiatives to Help Engineering Students Learn and Develop .....	85
<i>Duncan Fraser, University of Cape Town, South Africa</i>	

# Table of Contents

Preface .....	xv
---------------	----

## Section 1

### Chapter 1

Aligning Course Content, Assessment, and Delivery: Creating a Context for Outcome-Based Education .....	1
<i>Ruth A. Streveler, Purdue University, USA</i>	
<i>Karl A. Smith, Purdue University, USA</i>	
<i>Mary Pilotte, Purdue University, USA</i>	

### Chapter 2

A Case Study of Curriculum Development in Engineering: Insights Gained over Two Decades.....	27
<i>Duncan Fraser, University of Cape Town, South Africa</i>	

### Chapter 3

Changing the Curriculum to Problem-Based and Project-Based Learning .....	50
<i>Anette Kolmos, Aalborg University, Denmark</i>	

### Chapter 4

A Guide to the Art of Crafting Engineering Problems for Problem-Based Learning (PBL).....	62
<i>Mohammad Zamry Jamaludin, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Khairiyah Mohd-Yusof, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Nor Farida Harun, Universiti Teknologi Malaysia, Malaysia</i>	
<i>Syed Ahmad Helmi, Universiti Teknologi Malaysia, Malaysia</i>	

## Section 2

### Chapter 5

Curriculum Initiatives to Help Engineering Students Learn and Develop .....	85
<i>Duncan Fraser, University of Cape Town, South Africa</i>	

### **Section 3**

#### **Chapter 13**

Using Multiple Methods in Assessing Oral Communication Skills in the Final Year Project Design Course of an Undergraduate Engineering Program ..... 263

*Rohani Othman, Universiti Teknologi Malaysia, Malaysia*

*Zubaidah Awang, Universiti Teknologi Malaysia, Malaysia*

#### **Chapter 14**

Implementing Online Assessment for Summative Purpose in an Electronic Engineering Course ..... 288

*Rahmat Sanudin, Universiti Tun Hussein Onn, Malaysia*

#### **Chapter 15**

Enhancing Fuzzy Inference System-Based Criterion-Referenced Assessment with a Similarity Reasoning Technique ..... 302

*Tze Ling Jee, Universiti Malaysia Sarawak, Malaysia*

*Kai Meng Tay, Universiti Malaysia Sarawak, Malaysia*

*Chee Khoon Ng, Universiti Malaysia Sarawak, Malaysia*

#### **Chapter 16**

An Evaluation of Students' Practical Intelligence and Ability to Diagnose Equipment Faults ..... 328

*Zol Bahri Razali, Universiti Malaysia Perlis, Malaysia*

*James Trevelyan, University of Western Australia, Australia*

#### **Chapter 17**

Assessing Mechanical Engineering Undergraduates' Conceptual Knowledge in Three Dimensional Computer Aided Design (3D CAD) ..... 350

*Mohd Fadzil Daud, Universiti Teknologi Malaysia, Malaysia*

*Jamaluddin Mohd Taib, Universiti Teknologi Malaysia, Malaysia*

*Rio Sumarni Shariffudin, Universiti Teknologi Malaysia, Malaysia*

#### **Chapter 18**

Relationship between Accuracy in Ability Perception, Academic Performance, and Metacognitive Skills among Engineering Undergraduates: Implications for Higher Education Practice ..... 364

*Azlina Mohd Kosnin, Universiti Teknologi Malaysia, Malaysia*

*Mohd Zaki Daud, Universiti Teknologi Malaysia, Malaysia*

**Compilation of References** ..... 378

**About the Contributors** ..... 409

**Index** ..... 417