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APPENDIX A

AIMS AND OBJECTIVES OF THE DEPARTMENT’S MSc PROGRAMMES:

- MSc ENGINEERING MANAGEMENT (EM)
- MSc ENGINEERING ASSET MANAGEMENT (EAM)
- MSc MANUFACTURING ENGINEERING & MANAGEMENT (MEM)
- MSc PRODUCTION ENGINEERING & MANAGEMENT (PEM)
- MSc PRODUCTION MANAGEMENT (PM)
ENGINEERING MANAGEMENT (EM)

The overall objective of the Engineering Management (EM) programme is to provide advanced education and training in Management for graduates in Engineering, Science and related areas to meet current and future needs of manufacturing and allied industries.

The specific objective of this programme of study is to allow graduates in Engineering and Science to strengthen and enhance their capabilities in managing engineering functions.

On completion, the graduates of the EM programme would be able to:

i. Contribute to organisational efforts to achieve customer satisfaction.
iii. Develop and implement work design practices to enhance human performance.
iv. Ensure compliance with health, safety, and environmental regulations.
v. Implement work methods to ensure quality of products and services.
vi. Use Operations Research models for making optimal decisions.
vii. Formulate and implement projects for change management and enhancement of organisational performance.

viii. Ensure proper use of funds in compliance with financial policies and
ix. Formulate and implement maintenance policies and programmes for optimal use of physical assets.
ENGINEERING ASSET MANAGEMENT (EAM)

The objective of the Engineering Asset Management (EAM) programme is to provide industry with competent engineers capable of the acquisition, operation / maintenance, and disposition of the physical assets of the organisations.

This programme is designed to meet the University’s Strategic Plan to provide Industry with trained personnel in the area of Asset Management to support their growth and competitiveness.

The specific objective of this programme of study is to allow graduates in Engineering and Science to strengthen and enhance their capabilities in engineering asset management relating to the acquisition, operation / maintenance, and disposal of plant and equipment.

On completion, the graduates of the EAM programme would be able to:

i. Develop, deploy and evaluate strategic plans for physical assets in creating and sustaining a competitive edge.
ii. Formulate maintenance objectives to support corporate / operations objectives and strategies.
iii. Develop and implement maintenance plans and programmes to achieve maintenance objectives.
iv. Prepare and implement annual budgetary control systems.
v. Select and implement effective maintenance technologies.
vi. Design and deploy organisational structures, processes, and procedures for managing physical assets.
vii. Develop and implement work systems to achieve effective use of human resources.
viii. Plan and schedule maintenance work to optimise resources.
ix. Develop measurement and reporting systems for assessment of performance of assets and operations.
x. Formulate and execute long and medium term plans for improvement in asset performance.
xi. Apply analytical and optimization models to support decision-making.
xii. Plan and control major plant overhauls and turnarounds.
xiii. Select and use Computerised Maintenance Management Systems effectively and
xiv. Improve asset reliability and maintainability on a continuous basis.
MANUFACTURING ENGINEERING & MANAGEMENT (MEM)

The goal of the Manufacturing Engineering and Management (MEM) programme is to provide advanced education and training for graduates in Mechanical Engineering and similar graduates of CEng/IEng accredited degrees, to meet current and future needs of manufacturing and allied industries.

The objective of this programme of study is to allow graduates in Mechanical Engineering and equivalent domains to strengthen and enhance their technical, professional and managerial skills and capabilities in the areas of manufacturing engineering and manufacturing management.

It also seeks to provide Mechanical Engineering graduates and equivalent graduates with a deeper understanding of the knowledge required for designing products and manufacturing systems with the intention to improve effectiveness, promote innovativeness and enhance competitiveness of the Caribbean manufacturing sector.

In this regard the specific objectives of the programme are:

i. To provide graduate students with the advanced and specialised knowledge in the areas of MEM with a focus on the conventional and Computer Integrated Manufacturing (CIM) fields.

ii. To prepare graduates with the knowledge of product design processes and rapid product development approaches required to support the local and regional economy with a particular emphasis on integration of Computer Aided Design (CAD), computer aided engineering (CAE) and Computer Aided Manufacturing (CAM) tools and techniques.

iii. To produce graduates capable of developing lean management plans and material control policies that minimise overall costs of setup, ordering and inventories.

iv. To produce graduates capable of implementing and managing contemporary quality tools in the local and regional manufacturing industry.

v. To use incremental-iterative methods to solve nonlinear manufacturing problems arising from large deformations and/or nonlinear material properties and

vi. To choose shape and/or sizing parameters appropriately in product design.
On completion, the graduates of the MEM programme would be able to:

i. Apply systematic approach for appropriate design and evaluation of Manufacturing Planning and Control (MPC) systems, in the context of local and regional manufacturing.

ii. Identify various elements of Computer Integrated Manufacturing (CIM) and evaluation of their interactions for introduction of automated systems in the context of Caribbean industry.

iii. Apply an integrated modelling approach to design innovative product models by deploying total quality tools/techniques and project management skills to arrive at an innovative product design that fulfils the Caribbean industry requirements.

iv. Use the principles of Rapid Prototyping (RP) and Computer Numerical Control (CNC) programming skills for effective operation and utilisation of the manufacturing resources in the local industry.

v. Formulate and analyse a range of manufacturing systems and present the same through industry based design projects and validation through simulation experiments.

vi. Formulate and analyse a range of manufacturing problems using appropriate finite element models with due consideration being placed on validation.

vii. Develop the ability to prepare a project proposal from its conception to implementation, closeout and ex-post evaluation.

viii. Understand how to monitor, control and improve the quality of products and processes in industries, using the statistical methods and other quality improvement tools and techniques.

ix. Successfully manage the Health and Safety aspect of an Industrial Enterprise as well as manage the Environmental activities in an Industrial Facility to make the facility competitive and sustainable.

x. Outline the environmental aspects and logistics of locating a Plant and analyse the manufacturing processes of a manufacturing facility and

xi. Present data appropriately and deal with errors in a systematic manner.
The overall objective of the Production Engineering and Management (PEM) programme is to provide advanced education and training for graduates in Engineering, Science and related areas to meet current and future needs of manufacturing and allied industries.

The specific objective of this programme of study is to allow graduates in Mechanical and Industrial Engineering to strengthen and enhance their capabilities in engineering and management with an in-depth understanding of the technical, economic and managerial factors and their integration in the specification, design and operation of manufacturing systems.

On completion, the graduates of the PEM programme would be able to:

i. Contribute to organisational efforts to achieve customer satisfaction.


iii. Develop and implement work design practices to enhance human performance.

iv. Ensure compliance with health, safety, and environmental regulations.

v. Implement work methods to ensure quality of products and services.

vi. Use Operations Research models for making optimal decisions.

vii. Formulate and implement projects for change management and enhancement of organisational performance.

viii. Ensure proper use of funds in compliance with financial policies.

ix. Formulate and implement maintenance policies and programmes for optimal use of physical assets and

x. Design and implement plant facilities and modifications.
PRODUCTION MANAGEMENT (PM)

The overall objective of the Production Management (PM) programme is to provide advanced education and training in management for graduates in Engineering, Science and related areas to meet current and future needs of manufacturing and allied industries.

The specific objective of this programme of study is to allow graduates in Engineering and Science to strengthen and enhance their capabilities in production/operations management with a thorough understanding of the analysis, planning and control of production systems.

On completion, the graduates of the PM programme would be able to:

i. Contribute to organisational efforts to achieve customer satisfaction
iii. Develop and implement work design practices to enhance human performance.
iv. Ensure compliance with health, safety, and environmental regulations.
v. Implement work methods to ensure quality of products and services.
vi. Use Operations Research models for making optimal decisions.
vii. Formulate and implement projects for change management and enhancement of organisational performance.
viii. Ensure proper use of funds in compliance with financial policies.
ix. Develop and deploy production planning and control systems and
x. Implement JIT and Lean production programmes.
Student Version of MATLAB

The student version can be obtained from going to the link http://www.mathworks.com/pricing-licensing/index.html?intendeduse=student&prodcode=ML

Select this license if you are a student at a degree-granting institution and would like to use MATLAB, Simulink, or add-on products to meet course requirements and for academic research.

This license:

- Is available on the following platforms: Windows, Linux, and Macintosh.
- Is not for government, commercial, academic faculty and staff, or other organisational use.
- Is not for profit or revenue-generating activities.
- May be used by teachers and students at primary and secondary schools.

Note that the cost is:

**MATLAB** US$29  
**MATLAB Suite** $55  
**Add-on products** $16 each

**MATLAB Student (unbundled)**

Includes MATLAB only for US$29. **Add-on products by area of study** must be purchased separately at US $16 per module.

**MATLAB and Simulink Student Suite**

Includes MATLAB, Simulink, and 10 of the most widely used add-on products, as well as built-in support for prototyping, testing, and running models on low-cost target hardware. **This costs US$55.**

The modules included in this option are listed below:

- MATLAB
- Simulink
- Control Systems Toolbox
- Data Acquisition Toolbox
- DSP System Toolbox
- Image Processing Toolbox
- Instrument Control Toolbox
- Optimization Toolbox
- Signal Processing Toolbox
- Simulink Control Design
- Statistics and Machine Learning Toolbox
- Symbolic Math Toolbox

http://www.mathworks.com/academia/student_version/

The variety of add-ons can be found on
AutoDesk Products for student use

This can be obtained at http://www.autodesk.com/education/free-software/autocad

Make sure the machine you intend to use meets the system requirements of the software. https://knowledge.autodesk.com/support/autocad/troubleshooting/caas/sfdcarticles/sfdcarticles/System-requirements-for-AutoCAD.html

You will have to create an account on the site.

Please note the restrictions:
You are receiving an Educational license or entitlement for the software or service you have chosen and it can only be used for educational purposes in accordance with the terms set forth in the applicable software license agreement or terms of service.

Software licensed through Education Community by students or educators may only be installed on the student's or educator's personal computer or devices. Software licensed through Education Community by educational institutions may only be installed on the educational institution's computers or devices.

Once you have created an account and logged in go to the section of the page at the bottom with the heading Free Resources. Under Free Software for Students click Get Software.
You will be taken to a page where you can access various AutoDesk products including AutoCAD.

Choose the product you want to download. You will be taken to a screen to log in and provide information on the institution (The University of the West Indies, St. Augustine campus, address, telephone number, etc), how you intend to use the software and then you will be allowed to download the product.
Student Version of SolidWorks:


2. Complete the form shown. NOTE: Your lecturer or the computer lab administrator will provide the code for the “School License ID” and/or the “SOLIDWORKS VAR Name”.

3. Download instructions and licensing serial number will be emailed to the address you provide.
Student Version of MasterCAM:

MasterCAM Home Learning Edition Student instructions for install.

Step 1. Note the install file is on one of Engineering Student server so the student laptop will have to be plugged into the Engineering student network, and WIFI card needs to be disabled.

Step 2. Click on the Start button and start typing the share name as indicated at Step 3.

Step 3. The share name can be typed as \engstudentmbr05\MasterCAMHLE. If this does not work try Step 4 otherwise go to Step 5.

Step 4. The share name can be typed as \192.168.26.11\MasterCAMHLE if the system cannot find the server by name.
Step 5. You will most likely be prompted for a password. Ensure that you type in sastudents\username and then complete the password.

Step 6. You can either double-click the executable to run it from the folder or copy the file to your desktop. Note it is over 900MB in size.
Student Version of Arena:

1. Go to https://www.arenasimulation.com

2. Click the **Download a Free Trial** link

3. Complete the form shown.

4. Download link and instructions will be emailed to the address you provide.
SOFTWARE PURCHASE LINKS

MATLAB *(Student pricing available)*

AUTOCAD *(Free for student use)*
http://www.autodesk.com/education/home

SOLIDWORKS *(Prices available for student edition)*
https://store.solidworks.com/studentstore/default.php

ARENA
https://www.arenasimulation.com/academic/compare-products
STUDENT CHAPTERS

The Department of Mechanical and Manufacturing Engineering recognises the importance of Professional Engineering Institutions and has undertaken a number of initiatives to get its students involved in some of these Associations during their programme of study.

During the orientation period each year senior members from the Association of Professional Engineers of Trinidad and Tobago (APETT), and the American Society of Mechanical Engineers (ASME) are invited by the Faculty to address the new and returning students on the benefits of being a member of a Professional Institution. New students are offered free student membership for one year by ASME while APETT offers free membership for all students throughout the duration of the undergraduate programmes. APETT works closely with the Engineering Students’ Society (ESS) in the Faculty of Engineering, UWI, and organises events for students such as lectures and field trips.

On February 20th 2014, the UWI St. Augustine celebrated the establishment of an official Student Chapter of the Institution of Mechanical Engineers (IMechE). The Student Chapter formation was guided by IMechE Caribbean Representatives Mr Deepak Lall and Dr. Chris Maharaj. The group was formally launched when it teamed up with the local student branch of the Institute of Electrical and Electronics Engineers (IEEE) to host a technical seminar. Since then, the Chapter has been intimately involved in numerous activities including a Mechanical Engineering Networking event that had 180 student and professional participants, a technical seminar on the Responsibilities of an Engineering Manager, and a UWI Department of Mechanical and Manufacturing Engineering Student/Staff Appreciation day. In addition, the IMechE Student Chapter also launched its newsletter.

The SME Student Unit launched its recruitment efforts during the orientation period of Semester I, 2015-2016 academic year. In November 2016 this Unit became registered as an official SME Student Chapter. The SME Student Chapter plans to host industry workshops/guest lectures and other interactive activities for the benefit of the students.

The IMechE and SME Student Chapters collaborate on various activities and contributed an article to the first edition of the Department’s Newsletter, which detailed the goals of the group.

For more information on these Professional Associations, please visit the following links or speak with your assigned Tutor/Programme Coordinator.

APETT http://www.apett.org/home/
ASME https://www.asme.org/about-asme/professional-membership/benefits-forstudents
IMECHE
https://nearyou.imeche.org/near-you/The-Americas/Pan-CaribbeanGroup/Trinidad---Tobago/university-of-west-indies-student-chapter
SME http://www.sme.org/studentzone/
APPENDIX D

ORIENTATION & ACADEMIC ADVISING SCHEDULE

2016/2017
MSc. Programmes in
*Production Engineering & Management, Engineering Management,
Production Management, Engineering Asset Management,
Manufacturing Engineering & Management.*

**Academic Advising Schedule 2017 - 2018**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Dates</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Year 1 Students</td>
<td>Monday 28th August 2017</td>
<td>9:00 a.m.–12:00 noon (<em>Presentations begin at 9:30 a.m.</em>)</td>
<td>Room 103, Block 1, Faculty of Engineering</td>
</tr>
<tr>
<td>✓ Production Engineering &amp; Management</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>✓ Engineering Management</td>
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<tr>
<td>✓ Production Management</td>
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<tr>
<td>✓ Engineering Asset Management</td>
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<tr>
<td>✓ Manufacturing Engineering and Management</td>
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<td></td>
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</tr>
<tr>
<td>Production Engineering &amp; Management</td>
<td>Tuesday 29th August 2016</td>
<td>Programme Coordinators</td>
<td></td>
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<tr>
<td>-------------------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td>Engineering Management</td>
<td>9:00 a.m. – 12:00 noon</td>
<td>Dr. G. King</td>
<td></td>
</tr>
<tr>
<td>Production Management</td>
<td>and</td>
<td>(Room 236)</td>
<td></td>
</tr>
<tr>
<td>Engineering Asset Management</td>
<td>1:00 p.m. – 4:00 p.m.</td>
<td>Dr. C. Maharaj</td>
<td></td>
</tr>
<tr>
<td>Manufacturing Engineering and Management</td>
<td></td>
<td>(Room 203)</td>
<td></td>
</tr>
</tbody>
</table>

Office – 2nd Floor, Block 1, Faculty of Engineering

Dr. G. King  
(Room 236)

Dr. C. Maharaj  
(Room 203)

Dr. T. Lalla  
(Room 237)

Mr. K. Jhagroo  
(Room 232)

Dr. K. Ojha  
(Room 235)
APPENDIX E

COURSEWORK CALENDAR
COURSEWORK CALENDAR

Students can access their Semester Coursework Calendar and Student Staff Liaison Committee meeting dates from the following link:

http://sta.uwi.edu/eng/mechanical/student-resources
APPENDIX F

IMPORTANT DEPARTMENTAL CONTACT INFORMATION
<table>
<thead>
<tr>
<th>POSITION</th>
<th>NAME</th>
<th>EMAIL</th>
<th>OFFICE</th>
<th>EXT</th>
</tr>
</thead>
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<td>PC Network Support Technician</td>
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<td>Mechanical Engineering Computer Lab</td>
<td>83431</td>
</tr>
</tbody>
</table>