



UWI
ST AUGUSTINE
CAMPUS

**ENGINEERING
REGULATIONS & SYLLABUSES
BACHELOR OF TECHNOLOGY**

2017/2018



B. Tech Degrees Student Prospectus 2017/2018
(Regulations & Syllabuses)

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ACADEMIC CALENDAR 2017-2018

ACTIVITY	SEMESTER 1 AUGUST - DECEMBER 2017	SEMESTER 2 JANUARY - MAY 2018	SUMMER MAY - JULY 2018
Semester BEGINS	August 27, 2017	January 21, 2018	May 27, 2018
Registration	August 21 – September 15, 2017	January 08 – February 02, 2018	May 21 – June 16, 2018
Teaching BEGINS	September 04, 2017	January 22, 2018	May 28, 2018
Orientation and Ice Breaker (UWILIFE) September 01, 2017			
Late registration / Late Payment Fee of TT\$200.00 applies FROM	September 11, 2017	January 29, 2018	June 11, 2018
Last day for payment of fees before course registration is removed (de-registration) / Compulsory Leave of Absence is recorded.	October 31, 2017	March 30, 2018	June 30, 2018
Application to carry forward coursework ENDS Change in Registration (ADD/DROP) ENDS Application for Leave of Absence ENDS Application for Credit and Exemptions ENDS	September 15, 2017	February 02, 2018	June 16, 2018
Teaching ENDS	December 01, 2017	April 20, 2018	July 07, 2018
Semester II Break	April 22 – 29, 2018		
Examinations BEGIN	December 04, 2017	April 30, 2018	July 10, 2018
Examinations END	December 22, 2017	May 18, 2018	July 20, 2018
Semester ENDS	December 22, 2017	May 18, 2018	July 20, 2018
ELPT TEST : Scheduled for the following dates	August 21, 2017 and October 12, 2017	February 15, 2018	-
SPECIALY-ADMITTED 2017/2018	SEMESTER I	SEMESTER 2	ENTIRE ACADEMIC YEAR
Application for Specially Admitted OPENS	November 14, 2016	November 14, 2016	November 14, 2016
Application for Specially Admitted ENDS	June 30, 2017	December 15, 2017	June 30, 2017

CEREMONIES

Matriculation Ceremony	September 21, 2017
Graduation Ceremonies	October 14, 2017 (Open Campus) October 21, 2017 (Cave Hill) October 26 - 28, 2017 (St. Augustine) November 3 to 4, 2017(Mona)

Revised August, 2017. This calendar is subject to change by the appropriate authorities.
most up-to-date calendar, visit <https://sta.uwi.edu/registration/academiccalendar.asp>

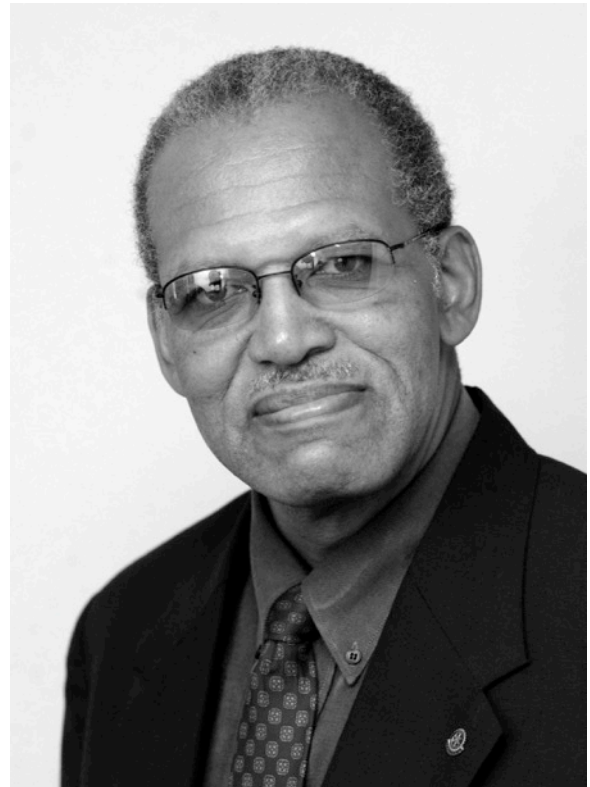
MISSION STATEMENT

To provide internationally recognized degrees in Engineering and to engage in impactful research and innovation.

MESSAGE FROM THE DEAN

The Faculty of Engineering of the University of the West Indies welcomes all new and returning students to its exciting undergraduate programmes in Engineering. This Faculty has a wonderful tradition of academic excellence and research scholarship developed over the 55 years of its existence. Today the Faculty offers internationally accredited programmes that attract students, lecturers and researchers from across the region and the world.

This booklet contains important information regarding programme content as well as the rules and regulations that will govern your progress through the system. You are encouraged to read it carefully and completely so that you are entirely familiar with your selected course of study and the associated regulations. The programmes of study and research are many and varied and cover the broad spectrum of engineering.



We in the Faculty are continuously striving to produce distinctive graduates by providing students with a high-quality and enjoyable learning experience. Towards this end, and in keeping with the University's quality assurance practices, our programmes are regularly reviewed by teams of professionals from other regional and international institutions as we strive to meet or surpass the demanding accreditation standards of recognized international accreditation bodies. My colleagues and I stay at the cutting edge of research and innovation in order to expose our students to the very best ideas and techniques.

Students in turn are expected to display diligence, discipline and dedication in this teaching and learning exercise by, among other things, attending all classes, completing all assignments and engaging in adequate self-study. Also, in order to perform at optimum levels students should eat healthy meals, exercise regularly and get adequate rest. Finally, I encourage you to work closely with your lecturers who are all very knowledgeable in their fields and are eager to assist and motivate you to high levels of achievement and success.

The world of the 21st century is filled with opportunities for those who are prepared to grasp them. Your entry to the Faculty is an indication that you are prepared to take up the challenge. We are supporting you and look forward to celebrating your success.

Stephan J. G. Gift

BSc (Eng), PhD (UWI), FAPETT, SMIEEE, MCAS, REng

AN HISTORICAL NOTE

The University of the West Indies was founded in 1948 at Mona, Jamaica as a College in special relationship with the University of London, to serve the British territories in the Caribbean area. It achieved full University status by Royal Charter in 1962, thereby becoming a degree-granting institution in its own right.

A second campus of the University was established in 1960 when the Imperial College of Tropical Agriculture (ICTA) at St. Augustine, Trinidad was incorporated into the University College. On August 25, 1959, a Plan of Operation was signed which provided for a United Nations Special Fund allocation and a Government counterpart contribution for the establishment of a Faculty of Engineering. The then Vice-Chancellor and Principal of the University College, Nobel Laureate Sir Arthur Lewis had the overall responsibility of securing funding for the financing of the Engineering buildings and for expediting the final decision to locate the Faculty of Engineering at St. Augustine.

The initial layout comprised five (5) blocks with a total of 5,400 square metres of floor space of which the laboratories occupied 3,030 square metres.

Construction commenced in 1961 and was completed by the end of 1962. During the 1961/62 Academic Year (the first year of teaching), the Faculty was housed in temporary accommodation on the campus. The formal opening of the new buildings of the Faculty took place on February 1, 1963.

Initially, undergraduate and graduate research degrees were offered in the main branches of Engineering - Chemical, Civil, Electrical and Mechanical. The Faculty steadily grew over the years with a major expansion of both physical infrastructure and academic programmes in the 1980s with additional disciplines at the BSc level and several specialist MSc degrees. Floor space now occupies close to 53,181 square metres of classrooms, laboratories and offices, with expansion continuing almost on a yearly basis.

From a modest beginning of 28 students in the Academic Year 1961/62, the Faculty has produced, up to Semester 2 of the 2014/2015 Academic Year, over 9000 graduates in the fields of Chemical and Process Engineering, Civil Engineering, Civil with Environmental Engineering, Electrical and Computer Engineering, Agricultural Engineering, Geomatics, Industrial Engineering, Land Management (Valuation), Mechanical Engineering, Mechanical Engineering with a Minor in Biosystems, Petroleum Engineering, Petroleum Geoscience, and Surveying and Land Information.

Administratively, the semester system was introduced in 1990 following decades of course delivery of over a 1-year period. The Grade Point Average (GPA) system was introduced in 2003 in an attempt to better measure student performance, and to improve global graduate marketability. The Faculty and the University engaged in another major change in the GPA system in which the pass-mark for all courses was changed from the old British tradition of a 40% threshold to 50%.

QUICK REFERENCE

REGISTRATION

REGISTRATION DEADLINES SET BY THE UNIVERSITY WILL BE STRICTLY ADHERED TO BY THE FACULTY. THERE WILL BE NO EXCEPTIONS. THESE DEADLINES ARE AS FOLLOWS:

On-line Registration Dates:

SEMESTER 1: August 21, 2017 to September 15, 2017

LATE REGISTRATION/LATE PAYMENT FEE:

from September 11, 2017

CHANGE OF REGISTRATION (ADD/DROP):

until September 15, 2017

On-line Registration Dates:

SEMESTER 2: January 8, 2018 to February 02, 2018

LATE REGISTRATION/LATE PAYMENT FEE: from January 29, 2018

CHANGE OF REGISTRATION (ADD/DROP): until February 03, 2017

On-line Registration Dates:

SUMMER SCHOOL: May 21 – June 16, 2018

LATE REGISTRATION/LATE PAYMENT FEE:

from June 11, 2018

CHANGE OF REGISTRATION (ADD/DROP):

until June 16, 2018

REGULATIONS

Pages 8-15 of the Faculty of Engineering's B.Tech Regulations & Syllabus

EXEMPTION & CREDIT

Regulations 3.1-3.2 of the Faculty of Engineering's B.Tech Regulations & Syllabus

EXAMINATIONS

GENERAL EXAMINATION REGULATIONS

Section II (16-30), pages 9-13 of the Examination Regulations for First Degrees, Associate Degrees, Diplomas and Certificates, 2011-2012

CONDUCT OF WRITTEN EXAMINATIONS

Section V (82-102), pages 28-34 of the Examination Regulations for First Degrees, Associate Degrees, Diplomas and Certificates, 2011-2012

REVIEW OF EXAMINATION RESULTS

Section VII (141-151), page 43 of the Examination Regulations for First Degrees, Associate Degrees, Diplomas and Certificates, 2011-2012

REMARKING OF EXAMINATION SCRIPTS

Section VII (143-151), pages 41-43 of the Examination Regulations for First Degrees, Associate Degrees, Diplomas and Certificates, 2011-2012

SCHEME OF EXAMINATION

Regulations 4.0 of the Faculty of Engineering's B.Tech Regulations & Syllabus

WARNINGS / WITHDRAWAL

Regulation 7.0 (a) – 7.0 (b) of the Faculty of Engineering's B.Tech Regulations & Syllabus

RE-ENTRY

Regulation 7.0 (c) – 7.0 (e) of the Faculty of Engineering's B.Tech Regulations & Syllabus

SECTION 1 – B. TECH REGULATIONS

1.0 QUALIFICATION FOR ADMISSION

- a. A National Technician Diploma (NTD/NETD) in in Electrical Engineering or Mechanical Engineering with a GPA of 2.5 (Grade C) or higher. The Diploma Programme should be of 2-year duration with a minimum of 90 credits.

AND

- b. A minimum of two (2) years' work experience.

2.0 PROGRAMME OF STUDY

All students must:

- a. Not normally carry a load of more than 10 credits per semester
- b. Pursue the approved programme curriculum and obtain, within a maximum of 18 semesters, the credits as prescribed in the Programme's Schedule. The B. Tech degree in Electrical Engineering comprises a total of 114 credits and the B. Tech in Mechanical Engineering comprises a total of 111 credits. The total number of credits include 35 transfer credits from the Technician's Diploma and seventy-nine 79 credits of new learning in Electrical Engineering Technology and 76 credits of new learning in Mechanical Engineering Technology respectively.
- c. Complete their programmes of study within 18 semesters of registration without exceeding the limit prescribed in Regulation 2.0 (a). Students who CANNOT complete their programme of study without exceeding the limit prescribed in Regulation 2.0 (a) would be declared as having failed the programme.
- d. Normally pass prerequisites for courses before being allowed to register for those courses.
- e. Ensure that in registering in any given semester that priority be given to all trailing courses and to pre-requisite requirements.
- f. Attend all classes for all courses for which they are registered for examinations, including courses that are being repeated, unless they have been granted permission in accordance with Regulation 2.0(b).
- g. Request permission to register for "Examinations Only", i.e. to not attend classes but to write course examinations, only in courses that are being repeated by the student and up to a maximum of seven (7) credits, provided they are credits needed to graduate, and that all coursework was successfully completed.

2.1 Schedule of Courses and Descriptions

- a. The B. Tech degrees are ordered into four (4) levels, with each level corresponding to a year of study constituting a trimester as prescribed in the Course Listings.

3.0 EXEMPTION AND CREDIT

3.1 Exemption

- a. Exemptions will not normally be granted in B. Tech degrees. Students are required to undertake and pass all courses.

3.2 Credit

- a. Students will be granted 35 transfer credits from the diploma programme.
- b. A student who voluntarily withdraws from the University and who applies for re-admission within five (5) years shall be granted exemption and credit for courses previously passed, subject to the time limit for the maintenance of credits stipulated in Regulation 3.2(c) and

subject to the stipulation that the courses previously passed have not substantially changed, and are not determined by the Board of the Faculty to be obsolete.

- c. Credits obtained more than five (5) years prior to an application for re-admission into a programme will not normally be applied to that programme.
- d. Where exemption and credit are granted in accordance with Regulation 3.2(b), the grades obtained at previous attempts at such courses shall be used in the determination of the student's GPA.

4.0 Scheme of Examination

4.1 Examination

- a. The examination of a course shall be conducted by written papers, coursework and/or project(s). Students are required to pass both the coursework and the final examination components before a pass can be awarded.
- b. A minimum mark of 50% must be made in order to pass a course, subject to any "must-pass" course-component stipulated within the course.
- c. A candidate who fails a course may be permitted by the Faculty Board to sit a supplemental examination. A supplemental exam may be offered to a student whose final mark is between 40-49%; supplemental examinations will be done at the next sitting of end of semester exams. In addition, where a student is granted a supplemental examination, the student will be given the choice as to whether to sit the supplemental examination or to repeat the course.
- d. Students who have not attended a minimum of 75% of classes may be treated as having failed the examination in those courses. Failure to enforce this rule is not to be construed as a waiver for future breach of this regulation.
- e. Candidates are not allowed to write an examination once they have already passed the relevant course.
- f. A candidate who fails to attend any examination and does not submit an acceptable medical certificate for his/her absence, as prescribed in the University Examination Regulations shall be treated as having failed that examination. If the candidate submits an acceptable medical certificate, he/she will be permitted to write the examination later, without penalty.

4.2 Coursework

- a. Coursework shall comprise laboratory, workshop, drawing and field exercises, literature surveys, problem exercises, in-house tests, reports and presentations or such other assignments as Faculty Board may approve. Course work assignments are assessable and contribute to the overall course mark attained in the course.
- b. A student who is absent from part of the written assessable coursework tests for grave medical reasons, as prescribed in the University Regulations, shall be graded on the tests he/she has taken as if such tests constitute the full test requirement provided that the tests not taken constitute no more than 20% of the total mark for all the tests. If the tests not taken constitute more than 20% of the total mark for all the tests, the candidate shall have to take make-up tests later.
- c. Students who fail a course will be required to repeat the coursework component at the next course offering.
- d. Students will be required to submit coursework by the prescribed date. Coursework will only be accepted after the deadline, in extenuating circumstances, with the specific written authority of the course instructor and in any event, not later than the day before the start of the relevant end of semester examinations of the semester in which the course is being offered.

- e. A 50% pass is required in the coursework component of the course before a student can be credited with a pass in that course.

4.3 Integrated Project in Industry

- a. A student will be required to develop his/her capstone project (Integrated Project in Industry) proposal on the prescribed template and submit to the Programme Coordinator at the start of Year 4 for consideration before proceeding. The Project shall be of a design type aimed at addressing a workplace problem and of sufficient rigour for 2 semesters of consistent work. Use of software for analysis and synthesis to compliment hand calculations is highly recommended.
- b. A student who fails his/her capstone project will be required to submit a new proposal to the Programme Coordinator for consideration and assignment of a project supervisor.

5.0 Notice of Examinations

Notice of the dates of end of semester examinations shall be posted on official notice boards and or B. Tech website within the minimum time as prescribed in the University Regulations.

6.0 Classification of Degree

- a. B. Tech degrees will be awarded in the following classes based on the overall performance of the graduating students through the programme:
 - i. First Class Honours
 - ii. Second Class Honours (Upper Division)
 - iii. Second Class Honours (Lower Division)
 - iv. Pass
- b. The notice of the award of the B. Tech degrees shall be published in a separate “Pass List” for each discipline with the ID numbers of the successful graduating students.
- c. The class of degree shall be awarded as First-Class Honours, Second Class Honours (Upper Division), Second Class Honours (Lower Division) or Pass based on the cumulative grade point average (CGPA).

Degree Category	CGPA
First Class Honours	≥ 3.60
Upper Second-Class Honours	3.00 - 3.59
Lower Second Class Honours	2.50 - 2.99
Pass	2.00 - 2.49
Fail	< 2.00

In the determination of GPA, the defined grades and the matching range of marks, with the corresponding quality points shall be:

Grade Range	Quality Points	%
A+	4.30	90 - 100
A	4.00	80 - 89
A-	3.70	75 - 79
B+	3.30	70 - 74
B	3.00	65 - 69
B-	2.70	60 - 64
C+	2.30	55 - 59
C	2.00	50 - 54
F1	1.70	40 - 49
F2	1.30	30 - 39
F3	0.00	0 - 29

- d. **Grade Point Average (GPA)** is calculated as the average obtained by dividing the total grade points (course credit x quality points) earned by the total credits for which the student has registered. **Semester GPA** is calculated as the average obtained by the total grade points earned in a semester by the total credits for which the student has registered for in that semester. **Cumulative GPA (CGPA)** is calculated as the average obtained by the total grade points divided by the total credits for which the student has registered for up to the time the calculation is done.

7.0 Warning and Withdrawals

- A student will be placed on warning if his/her previous semester GPA is less than 2.00. A student on warning shall be counselled by the Dean/Programme Coordinator.
- A student on Warning whose semester GPA for the succeeding semester is less than 2.00 will be required to withdraw. In extenuating circumstances on the advice of the Dean/Programme Coordinator the student may be allowed to carry a reduced course load.

Readmission of persons who were Required to Withdraw

- A person who was required to withdraw from the University because of failure to progress due to poor performance may be re-admitted after a minimum of one (1) year has passed since the date of withdrawal.
- A person who was required to withdraw from the programme can only be re-admitted after submission of an on-line application at the same time applications are invited for new students and subsequent approval of the application by the Faculty.
- If a student has been readmitted all grades previously obtained shall continue to apply for determining the student's GPA.

8.0 Cheating, Plagiarism & Collusion

- a. Cheating is any attempt to benefit one's self or another by deceit or fraud.
- b. Plagiarism is the unauthorised and/or unacknowledged use of another person's intellectual efforts and creations howsoever recorded, including whether formally published or in manuscript or in typescript or other printed or electronically presented form and includes taking passages, ideas or structures from another work or author without proper and unequivocal attribution of such source(s), using the conventions for attributions or citing used in this University. Plagiarism is a form of cheating.
- c. For the purposes of these Regulations, 'collusion' shall mean the unauthorised or unlawful collaboration or agreement between two or more students in the preparation, writing or production of a course assignment for examination and assessment, to the extent that they have produced the same or substantially the same paper, project report, as the case may be, as if it were their separate and individual efforts, in circumstances where they knew or had reason to know that the assignment or a part thereof was not intended to be a group project, but was rather to be the product of each student's individual efforts.
(N.B: Please refer to Guidelines for Staff and Students on Plagiarism and The University's Regulations on Plagiarism in Section 5: Additional Regulations.)

8.1 University regulations on plagiarism

Application of these Regulations

- 1 These Regulations apply to the presentation of work by a student for evaluation, whether or not for credit, but do not apply to invigilated written examinations.

Definition of plagiarism

- 2 In these Regulations, "plagiarism" means the unacknowledged and unjustified use of the words, ideas or creations of another, including unjustified unacknowledged quotation and unjustified unattributed borrowing;

"Level 1 plagiarism" means plagiarism which does not meet the definition of Level 2 plagiarism;

"Level 2 plagiarism" means plagiarism undertaken with the intention of passing off as original work by the plagiariser work done by another person or persons.

- 3 What may otherwise meet the definition of plagiarism may be justified for the purposes of Regulation 2 where the particular unacknowledged use of the words, ideas and creations of another is by the standards of the relevant academic discipline a function of part or all of the object of the work for evaluation whether or not for credit, for example:
 - a. The unacknowledged use is required for conformity with presentation standards;
 - b. The task set or undertaken is one of translation of the work of another into a different language or format;
 - c. The task set or undertaken requires producing a result by teamwork for joint credit regardless of the level of individual contribution;
 - d. The task set or undertaken requires extensive adaptation of models within a time period of such brevity as to exclude extensive attribution;
 - e. The task set or undertaken requires the use of an artificial language, such as is the case with computer programming, where the use of unoriginal verbal formulae is essential.

- 4 It is not a justification under Regulations 2 and 3 for the unacknowledged use of the words, ideas and creations of another that the user enjoys the right of use of those words, ideas and creations as a matter of intellectual property.

Other definitions

- 5 In these Regulations,
“Chairman” means the Chairman of the relevant Campus Committee on Examinations;
“Examination Regulations” means the Examination and other forms of Assessment Regulations for First Degrees Associate Degrees Diplomas and Certificates of the University; set of facts” means a fact or combination of facts.

Evidence of plagiarism

- 6 In order to constitute evidence of plagiarism under these Regulations, there shall be identified as a minimum the passage or passages in the student’s work which are considered to have been plagiarised and the passage or passages from which the passages in the student’s work are considered to have been taken.

Student Statement on Plagiarism

- 7 When a student submits for examination work under Regulation 1, the student shall sign a statement, in such form as the Campus Registrar may prescribe, that as far as possible the work submitted is free of plagiarism including unattributed quotation or paraphrase of the work of another except where justified under Regulation 3.
- 8 Quotation or paraphrase is attributed for the purpose of Regulation 7 if the writer has indicated using conventions appropriate to the discipline that the work is not the writer’s own.
- 9 The University is not prohibited from proceeding with a charge of plagiarism where there is no statement as prescribed under Regulation 7.

Electronic vetting for plagiarism

- 10 The results of any electronic vetting although capable, where the requirements of Regulation 7 are satisfied, of constituting evidence under these Regulations, are not thereby conclusive of any question as to whether or not plagiarism exists.

Level 1 plagiarism

- 11 In work submitted for examination where the Examiner is satisfied that Level 1 plagiarism has been committed, he/she shall penalise the student by reducing the mark which would have otherwise been awarded taking into account any relevant Faculty regulations.

Level 2 plagiarism

- 12 Where an examiner has evidence of Level 2 plagiarism in the material being examined, that examiner shall report it to the Head of Department or the Dean and may at any time provide the Registrar with a copy of that report. In cases where the examiner and the Dean are one and the same, the report shall be referred to the Head of the Department and also to the Campus Registrar.
- 13 Where any other person who in the course of duty sees material being examined which he or she believes is evidence of Level 2 plagiarism that other person may report it to the Head of

Department or the Dean and may at any time report it to the Campus Registrar who shall take such action as may be appropriate.

- 14 Where a Dean or Head of Department receives a report either under Regulation 12 or 13, the Dean or Head of Department, as the case may be, shall
 - a. where in concurrence with the report's identification of evidence of Level 2 plagiarism, report the matter to the Campus Registrar; or
 - b. where not concurring in the identification of evidence of plagiarism, reply to the examiner declining to proceed further on the report; or
 - c. where concluding that there is evidence of Level 1 plagiarism, reply to the examiner indicating that conclusion and the Examiner shall proceed as under Regulation 11.
- 15 Where a report is made to the Campus Registrar under Regulation 14a or 16, the Campus Registrar shall lay a charge and refer the matter to the Campus Committee on Examinations.
- 16 Where the Campus Registrar receives a report alleging Level 2 plagiarism from the Examiner or any other person except the Dean or Head of Department, the Campus Registrar shall refer the matter to a senior academic to determine whether there is sufficient evidence to ground a charge of plagiarism and where such evidence is found, the Campus Registrar shall proceed as under Regulation 15.
- 17 Where the matter has been referred to the Campus Committee on Examinations pursuant to Regulation 15, the proceedings under these Regulations prevail, over any other disciplinary proceedings within the University initiated against the student based on the same facts and, without prejudice to Regulation 21, any other such disciplinary proceedings shall be stayed, subject to being reopened.
- 18 If the Campus Committee on Examinations is satisfied, after holding a hearing, that the student has committed Level 2 plagiarism, it shall in making a determination on the severity of the penalty take into consideration:
 - a. the circumstances of the particular case;
 - b. the seniority of the student; and
 - c. whether this is the first or a repeated incidence of Level 2 plagiarism.
- 19 Where the Campus Committee is of the view that the appropriate penalty for an offence of Level 2 plagiarism is for the student to be:
 - (i) awarded a fail mark;
 - (ii) excluded from some or all further examinations of the University for such period as it may determine;
 - (iii) be dismissed from the University,it shall make such recommendation to the Academic Board.

Clearance on a charge of Level 2 plagiarism

- 20 A determination of the Campus Committee on Examinations that Level 2 plagiarism has not been found will be reported to the Campus Registrar who shall refer it to the Examiner and notify the student. Where the Committee has not identified Level 2 but has identified Level 1, it shall be reported to the Campus Registrar who shall refer it to the examiner.

Level 2 plagiarism: Appeal to the Senate

- 21 A student may appeal to the Senate from any decision against him or her on a charge of plagiarism made by Academic Board.

Delegation by Dean or Head of Department

- 22 The Dean or Head of Department, as the case may be, may generally or in a particular instance delegate that officer's functions under these Regulations.

Conflict of interest disqualification

- 23 Any person who has at any time been an examiner of work or been involved in procedures for laying charges in relation to which an issue of plagiarism is being considered under these Regulations shall withdraw from performing any functions under these Regulations other than those of supervisor and examiner.

8.2 Plagiarism Declaration Forms

THE UNIVERSITY OF THE WEST INDIES **The Office of the Board for Undergraduate Studies** **INDIVIDUAL PLAGIARISM DECLARATION**

STUDENT ID:

COURSE TITLE:

COURSE CODE:

TITLE OF ASSIGNMENT:

This declaration is being made in accordance with the **University Regulations on Plagiarism (First Degrees, Diplomas and Certificates)** and must be attached to all work, submitted by a student to be assessed in partial or complete fulfilment of the course requirement(s), other than work submitted in an invigilated examination.

STATEMENT

1. I have read the Plagiarism Regulations as set out in the Faculty or Open Campus Student Handbook and on University websites related to the submission of coursework for assessment.
2. I declare that I understand that plagiarism is a serious academic offence for which the University may impose severe penalties.
3. I declare that the submitted work indicated above is my own work, except where duly acknowledged and referenced and does not contain any plagiarized material.
4. I also declare that this work has not been previously submitted for credit either in its entirety or in part within the UWI or elsewhere. Where work was previously submitted, permission has been granted by my Supervisor/Lecturer/Instructor as reflected by the attached Accountability Statement.
5. I understand that I may be required to submit the work in electronic form and accept that the University may subject the work to a computer-based similarity detection service.

NAME _____

SIGNATURE _____

DATE _____

ADDITIONAL ACCOUNTABILITY STATEMENT WHERE WORK HAS BEEN PREVIOUSLY SUBMITTED

1. I/We have set out in an attached statement the details regarding the circumstances under which this paper or parts thereof has been previously submitted.
2. I/We have received written permission from my Supervisor/Lecturer/Instructor regarding the submission of this paper and I have attached a copy of that written permission to this statement.
3. I/We hereby declare that the submission of this paper is in keeping with the permission granted.

NAME _____

SIGNATURE _____

DATE _____

9.0 Penalties

- a. Cheating, plagiarism and collusion shall be reported to the Campus Committee on Examinations and the penalties would be in accordance with the University Examination Regulations. Additional designations are as indicated Section 5: Additional Regulations.

10.0 Dress Code and Conduct

The following regulations are included in the interest of safety and the development of a professional environment similar to what would obtain in the world of work

- a. Students must at all times conduct and present themselves in a manner in keeping with the nature of the Engineering Profession, and as directed by the Department in which the student is registered.
- b. In consideration of Occupational Health and Safety issues in the laboratories, Departments would advise students on the appropriate attire to be worn in laboratories and other locations where practical work is conducted. **PRESCRIBED LABORATORY ATTIRE WOULD BE ENFORCED AT ALL TIMES.**

- c. Students who are not appropriately attired SHALL NOT BE ALLOWED ENTRY in any Laboratory, Workshop, Field Trip or other locations where such attire is required in the interest of safety.
- d. Student ID cards MUST be clearly displayed at all times when on UWI premises. Student ID cards are also required to facilitate all transactions in the Faculty/University.

Food and drink SHALL NOT be brought into classrooms or laboratories.

11.0 Acronym Table

AB	Absent - when a student is absent from an examination for acceptable reasons other than medical reasons.
AM	Absent Medical
CR	Credit
DIS	Disqualified
E	Exemption.
EC	Exemption with credit.
EI	Examination Irregularity -Candidate disqualified from examination on account of breach of the Regulations
EQ	Examination Query
FA	When a student is absent from an examination without a valid reason
FC	Failed Coursework - Indicates that a candidate has failed to satisfy the Examiner In the coursework component of the course
FE	Failed Examination - when a candidate has successfully completed the coursework requirement but has failed to satisfy the Examiners In the examination component of the course
FM	Failed Medical - when a student is absent from an examination for medical reasons or where failure in an examination is attributed to medical reasons as supported by a certificate from an authorised medical practitioner
FNP	Failed – No Penalty
FO	Fail Oral
FP	Failed Practical
FPR	Failed Programme
FT	Failed Theory
FWS	Fail/Supplemental Examination granted

SECTION 2 – B. TECH SCHEDULE OF COURSES

2.1. The B. Tech in Electrical Engineering – Course Schedule

Students must attain 114 credits for graduation (35 transfer credits and 79 credits of new learning). Courses that comprise new learning are prescribed below and subject to applicable regulations. Students satisfying the above will be recognized as having completed their degree and will automatically be placed on the Faculty of Engineering's list of students recommended for the award of Bachelor of Technology (B. Tech) in Electrical Engineering. Unless otherwise stated.

LEVEL 1

SEMESTER 1			7 CREDITS
Course Code	Course Title		Credits
ENGT 1001	Advanced Technology Mathematics (Cal.I)		E3

ENGT 1002	Engineering Physics		E4
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SEMESTER 2			6 CREDITS
Course Code	Course Title		Credits
ENGT 1003	Advanced Technology Mathematics (Cal.II)		E3
ENGT 1004	Contract Management		E3

SEMESTER 3			9 CREDITS
Course Code	Course Title		Credits
ENGT 1005	Communication in Sc, Engg & Tech		C3
ELET 1001	Communication Systems		C3
ENGT 1006	Project Management		E3

LEVEL 2

SEMESTER 1			6 CREDITS
Course Code	Course Title		Credits
ELET 2001	Control Systems & Lab		E3
ENGT 2001	Materials & Processes		E3

SEMESTER 2			8 CREDITS
Course Code	Course Title		Credits
ELET 2002	Visual Basic Programming & Lab		E4
ELET 2003	Microprocessor Architecture & Lab		E4

SEMESTER 3			10 CREDITS
Course Code	Course Title		Credits
ENGT 2002	Corrosion Control		E2
ELET2004	Rotating Machine Controls & Lab		E4
ELET2005	Electronic Circuits & Lab		E4

LEVEL 3

SEMESTER 1			5 CREDITS
Course Code	Course Title		Credits
ENGT 3001	Vibration Analysis		E2
ELET3001	Power Transmission & Lab		E3

SEMESTER 2			6 CREDITS
Course Code	Course Title		Credits
ELET3002	Power Distribution Systems		E3
ELET3003	Electrical Power Systems & Utility Practices		E3

SEMESTER 3			9 CREDITS
Course Code	Course Title		Credits
ELET3004	Advanced Control Systems & PLCs		E3
ENGT 3002	Org Leadership & Supervision		C3
ENGT 3003	Engineering Economics		E3

LEVEL 4

SEMESTER 1			4 CREDITS
Course Code	Course Title		Credits
ELET3401	Database Design & Programming Lab		E4

YEAR LONG			6 CREDITS
ELET3402	Integrated Project in Industry		C6

SEMESTER 2			3 CREDITS
Course Code	Course Title		Credits
ENGT 3401	Financial Control, Budgets, Planning		C3

2. 2 The B. Tech in Mechanical Engineering – Course Schedule

Students must attain 111 credits for graduation (35 transfer credits and 76 credits of new learning). Courses that comprise new learning are prescribed below and subject to applicable regulations. Students satisfying the above will be recognized as having completed their degree and will automatically be placed on the Faculty of Engineering's list of students recommended for the award of Bachelor of Technology (B. Tech) in Mechanical Engineering. Unless otherwise stated.

LEVEL 1

SEMESTER 1			7 CREDITS
Course Code	Course Title		Credits
ENGT 1001	Advanced Technology Mathematics (Cal.I)		E3
ENGT 1002	Engineering Physics		E4

SEMESTER 2			6 CREDITS
Course Code	Course Title		Credits
ENGT 1003	Advanced Technology Mathematics (Cal.II)		E3
ENGT 1004	Contract Management		E3

SEMESTER 3			10 CREDITS	Planning
Course Code	Course Title	Credits		
ENGT 1005	Communication in Sc, Engg & Tech	C3		
MECT 1001	Strength of Materials & Lab	E4		
ENGT 1006	Project Management	E3		
LEVEL 2				
SEMESTER 1			6 CREDITS	
Course Code	Course Title	Credits		
MECT 2001	Applied Thermodynamics	E3		
ENGT 2001	Materials & Processes	E3		
SEMESTER 2			6 CREDITS	
Course Code	Course Title	Credits		
MECT 2002	Quality Control Technology	E3		
MECT 2003	Dynamics of Mechanisms	E3		
SEMESTER 3			9 CREDITS	
Course Code	Course Title	Credits		
ENGT 2002	Corrosion Control	E2		
MECT 2004	Design of Mechanisms & Labs	E4		
MECT 2005	Modern Maintenance Management	E3		
LEVEL 3				
SEMESTER 1			5 CREDITS	
Course Code	Course Title	Credits		
ENGT 3001	Vibration Analysis	E2		
MECT 3001	Computer Aided Design	C3		
SEMESTER 2			6 CREDITS	
Course Code	Course Title	Credits		
MECT 3002	Automated Manufacturing Systems	C3		
MECT 3003	Rotating Machines	E3		
SEMESTER 3			9 CREDITS	
Course Code	Course Title	Credits		
MECT 3004	Applications in Stress Analysis	E3		
ENGT 3002	Org Leadership & Supervision	C3		
ENGT 3003	Engineering Economics	E3		
LEVEL 4				
SEMESTER 1			3 CREDITS	
Course Code	Course Title	Credits		
MECT 3401	Manufacturing Systems Control	C3		
YEAR LONG			6 CREDIT	
Course Code	Course Title	Credits		
MECT 3402	Integrated Project in Industry	C6		
SEMESTER 2			3 CREDITS	
Course Code	Course Title	Credits		
ENGT 3401	Financial Control, Budgets,	C3		

2.1.3 The B. Tech in Electrical Engineering – Course Descriptions

LEVEL 1

SEMESTER 1

COURSE CODE: ENGT 1001

COURSE TITLE: ADVANCE TECHNOLOGY

MATHEMATICS (CAL.I)

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Provide the student with the advanced mathematics required to analyze and solve complex problems in electrical engineering. This course concentrates on matrix theory, vector calculus, differential calculus etc. The course is taught using problem based approach and laboratory exercises using MATLAB software package.

LEVEL 1

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ELET 1001

COURSE TITLE: COMMUNICATION SYSTEMS

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: This course treats with generic communication systems and technologies as applied to legacy and contemporary systems. Emphasis is on the communication technologies used here in local industries

LEVEL 1

SEMESTER 1

COURSE CODE: ENGT 1002

COURSE TITLE: ENGINEERING PHYSICS

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: This course concentrates on basic mathematics, lasers and nanotechnology etc. The course is taught using problem based approach and laboratory exercises. Upon completing the course, the student would have acquired the competence in physical science to solve a range of complex electrical engineering problems.

LEVEL 1

SEMESTER:2

COURSE CODE: ENGT 1003

COURSE TITLE: ADVANCE TECHNOLOGY MATHEMATICS (Cal.II)

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Provide the student with the advanced mathematics required to analyze and solve complex problems in electrical engineering. This course concentrates on matrix theory, vector calculus, differential calculus etc. The course is taught using problem based approach and laboratory exercises using MATLAB software package.

LEVEL 1

SEMESTER: 2

COURSE CODE: ENGT 1004

COURSE TITLE: CONTRACT MANAGEMENT

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: This course concentrates on aspects of procurement, contract and risk management with emphasis on its application. Key components include negotiations, legal aspects, contract types and financial reporting in a modern plant environment. This course concludes with the student developing a mini procurement contract.

LEVEL 1

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ENGT 1005

COURSE TITLE: COMMUNICATION IN Sc, ENGG & TECH

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Students will become familiar with the interactive relationship between context, message, audience and purpose in workplace writing. Students will learn basic strategies and current conventions for written communication, oral communication, correspondence and short reports, research and documentation, integration of visual elements and correct language usage. Skills and techniques developed in ENGT 1005 are strengthened through presentations, role playing and report writing in ENGT 3003 Engineering Economics.

LEVEL 1

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ENGT 1006

COURSE TITLE: PROJECT MANAGEMENT

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION The course provides the student with the theory and practice of project management. It will enable them to apply the concepts of how to initiate, plan, execute, monitor and control and close out a project within the parameters of scope, time and cost. In the computer laboratory, they will learn the basic theory and application of the use of Microsoft Project software.

LEVEL 2

SEMESTER: 1

COURSE CODE ELET 2001

COURSE TITLE: CONTROL SYSTEMS & LAB

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: This course allows the student to design and evaluate basic control systems. Emphasis on using MATLAB simulation software to design, test and debug control circuitry is a key component of this course. To present techniques for the modelling, analysis, design and implementation using case studies of control systems from the mfg. /process industry. This course is the pre-

cursor to ELECT 3004 Advanced Control Systems' and PLCs. The course is taught using a problem based approach and laboratory exercises using MATLAB software package.

LEVEL 2

SEMESTER: 1

COURSE CODE: ENGT 2001

COURSE TITLE: MATERIALS & PROCESSES

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Provides the student with the ability to correctly choose the appropriate materials and metal working process with emphasis on manufacture and operating methods. Emphasis is placed on fundamentals, procedures, concepts, and the technology for the metal trade. Provide the plant technologist with up to date information in advances in materials and manufacturing technology. Skills and techniques developed in ENGT 1005 Communication in Sc, Engg & Tech are strengthened through report writing in ENGT 2001 Materials and Processes.

LEVEL 2

SEMESTER: 2

COURSE CODE: ELET 2002

COURSE TITLE: VISUAL BASIC PROGRAMMING & LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: This course introduces computer programming using the Visual BASIC programming language with object-oriented programming principles. Course coverage includes event-driven programming methods, creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test and debug at a beginning level; comprehensive hands on training will be provided to the students in Visual BASIC programming on standard Microsoft platforms.

LEVEL 2

SEMESTER: SUMMER SEMESTER

COURSE CODE: ENGT 2002

COURSE TITLE: CORROSION CONTROL

NUMBER OF CREDITS: 2

PREREQUISITES:

COURSE DESCRIPTION: The student will be able to analyze and solve basic problems of corrosion in structural materials. Electrochemical and thermodynamic concepts, the different forms of corrosion and contributing factors, corrosion control and monitoring will be covered in a practical sense as it pertains to a mfg./process plant. The course also involves laboratory exercises in practical corrosion science.

LEVEL 2

SEMESTER: 2

COURSE CODE: ELET 2003

COURSE TITLE: MICROPROCESSOR ARCHITECTURE & LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: Microprocessors come in several word lengths, depending upon the number of registers, the amount of on-chip memory and the intended applications. The course will expose students to general microprocessor architecture by describing the internal structure and functions. The student, given relevant diagrams and specifications for a system, will be able to identify and describe the role of a microprocessor / a microprocessor-based system. In addition, emphasis will be placed on the integrated circuit microprocessor and the semi-conductor memory units that go hand in hand with the microprocessor in a microcomputer system.

LEVEL 2

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ELET 2004

COURSE TITLE: ROTATING MACHINE CONTROLS & LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: Students will be able to explain the workings of rotating electrical machines using basic electrical theory and equivalent circuit diagrams for induction motor, synchronous motor, synchronous generator, DC motor, slip ring motor, and single phase motor. Explain the methods and perform basic calculations for rotating machine control (starting, speed control etc.). The course also includes laboratory exercises in the various types of starters (DOL, Reduced Voltage, Forward Reverse), synchronous and DC motors.

LEVEL 2

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ELET 2005

COURSE TITLE: ELECTRONIC CIRCUITS & LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: This course provides the main foundation for understanding and designing electronic systems of intermediate complexity. An increased emphasis is placed in design using discrete and integrated circuits and the concept of feedback is introduced. The main topics considered are feedback amplifiers, power supplies, active filters, oscillators, waveform generators and non-linear systems.

LEVEL 3

SEMESTER: 1

COURSE CODE: ENGT 3001

COURSE TITLE: VIBRATION ANALYSIS

NUMBER OF CREDITS: 2

PREREQUISITES:

COURSE DESCRIPTION: Provide the student with techniques to analyze some of the basic machinery vibration problems and recommend basic corrective actions to mitigate against equipment failure. Students will be exposed to a condition monitoring program in

industry. Upon completion of the course, students would have the foundation necessary for certification at higher levels in the field of machinery vibration analysis. The course also involves laboratory exercise to emphasize various aspects of vibration analysis.

LEVEL 3

SEMESTER: 1

COURSE CODE: ELET 3001

COURSE TITLE: POWER TRANSMISSION & LAB

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: The course provides a foundation on thermal power generating stations and its interconnectivity. The student will be able to perform basic calculations involving transmission lines, switchgear, protection equipment and control devices in substations, draw equivalent circuits of transmission lines and power exchange; conduct fault analysis and basic calculations on power systems. Considerable attention is given to power calculations, transformers, 3-phase circuits, power transmission and distribution.

LEVEL 3

SEMESTER: 2

COURSE CODE: ELET 3002

COURSE TITLE: POWER DISTRIBUTION SYSTEMS

PREREQUISITES: 3

COURSE DESCRIPTION: The course provides the fundamentals of bulk electric power distribution. Upon completing the course, the student will be able to perform basic calculations involving power transformer modelling, medium and low voltage distribution system protection and renewable energy sources. Attention is given to power calculations, transformers, 3-phase circuits, medium and low voltage distribution systems.

LEVEL 3

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ENGT 3002

COURSE TITLE: ORG LEADERSHIP & SUPERVISION

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: This course explores organizational leadership within the context of T&T mfg. / process industries. This is a practical course that utilises role playing as a method for developing specific management techniques. Guest speakers provide relevant insights into HR functions including staff development and training. Key topics in this course include organizational behaviour theories and managing resources including people and finances. This course concludes with the student submitting a professional development plan.

LEVEL 3

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ENGT 3003

COURSE TITLE: ENGINEERING ECONOMICS

NUMBER OF CREDITS: 3

PREREQUISITES: ENGT 1004, ENGT 1005

COURSE DESCRIPTION: This course concentrates on aspects of economic management of mfg. / processes in

a modern plant environment. Key components include international trade, EXIM policies and regulations and monetary management. After this course, the student will be able to conduct a basic macro-economic evaluation of a project. This course builds upon the mini-procurement contract developed in ENGT 1004 contract management allowing the student to perform an economic feasibility analysis. Skills and techniques developed in ENGT 1005 are strengthened through presentations, role playing and report writing.

LEVEL 3

SEMESTER: 2

COURSE CODE: ELET 3003

COURSE TITLE: ELECTRICAL POWER SYSTEMS & UTILITY PRACTICES

NUMBER OF CREDITS: 3

PREREQUISITES: ELET 3001, ELET 3002

COURSE DESCRIPTION: This course builds on ELET 3001 Power Transmission & Lab ELET 3002 Power Distribution Systems, allowing the student to visualize the entire T&T AC bulk power system. The course begins with a review of power generation and types of generating stations in T&T. Building upon this review the student develops the skills necessary to perform analysis and basic calculations for load flow studies, transmission and distribution networks, power system protection and maintenance of electrical power infrastructure.

LEVEL 3

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ELET 3004

COURSE TITLE: ADVANCED CONTROL SYSTEMS & PLCs

NUMBER OF CREDITS: 3

PREREQUISITES: ELET 2001, ENGT 1001, ENGT 1003, ENGT 3003

COURSE DESCRIPTION: This course builds on the intermediate ELET 2001 Control Systems & Lab and integrates mathematical concepts from ENGT 1001, ENGT 1003 and economic analysis from ENGT 3003 Engineering Economics to allow the student to design and evaluate the economic feasibility of advanced control systems. Emphasis on using MATLAB simulation software to design, test and de-bug control circuitry is a key component of this course. To present techniques for the modelling, analysis, design and implementation using case studies of advanced control systems from industry.

LEVEL 4

SEMESTER: 1

COURSE CODE: ELET 3401

COURSE TITLE: DATABASE DESIGN & PROGRAMMING LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: This course provides hands-on experience with modern database products starting from installation to developing a small-scale prototype information system. Oracle (Oracle Corporation, USA) will be used to provide hands on training to the students. The course is divided into three major areas – 1) Database design and practical training on Oracle database; 2)

Programming with PL/SQL to provide user interface with the database. 3) Information systems and Data warehousing Technologies. The emphasis for the course is on design rather than understanding internal mechanisms of database and data storage and retrieval.

LEVEL 4

SEMESTER: 2

COURSE CODE: ENGT 3401

COURSE TITLE: FINANCIAL CONTROL, BUDGETS, PLANNING

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: The course is divided into (1) Fundamentals of Accounting and (2) Fundamentals of Capital Budgeting. Upon completing the course, students will be able to apply fundamentals of the financial and managerial accounting cycle and prepare basic financial statements. In addition, to accounting theory and practice, topics will also include the classification of business transactions, asset and liability valuation and income determination. Cost determination, allocation procedures and the utilization of financial information for internal management purposes will be emphasised. The course also covers capital budgeting and cash flow analysis.

LEVEL 4

SEMESTER: YEAR LONG

COURSE CODE: ELET 3402

COURSE TITLE: INTEGRATED PROJECT IN INDUSTRY

NUMBER OF CREDITS: 6

PREREQUISITES: All courses except for the co-requisites

CO-REQUISITES: ENGT 3401, ELET 3401

COURSE DESCRIPTION: A capstone project is a critical component in technology programmes. The course prepares the students to work independently under the guidance of a supervisor on an approved project of the student's choice, preferably a problem of interest from his/her employer in the area of study. The result will be to produce deliverables based upon an agreed project plan within 2 semesters. The course will develop critical thinking, writing a technical and economic feasibility report, oral presentation skills, working under supervision, and having deadlines.

2.1.4 The B. Tech in Mechanical Engineering – Course Descriptions

LEVEL 1

SEMESTER 1

COURSE CODE: ENGT 1001

COURSE TITLE: ADVANCE TECHNOLOGY MATHEMATICS (CAL.I)

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Provide the student with the advanced mathematics required to analyze and solve complex problems in mechanical engineering. This course concentrates on matrix theory, vector calculus, differential calculus etc. The course is taught using

problem based approach and laboratory exercises using MATLAB software package.

LEVEL 1

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: MECT 1001

COURSE TITLE: STRENGTH OF MATERIALS & LAB

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: The course allows the student to apply mechanics of solids to practical situations within industry. A strong emphasis has been placed on fundamentals, procedures and concepts of engineering design as it applies to plant and equipment.

LEVEL 1

SEMESTER 1

COURSE CODE: ENGT 1002

COURSE TITLE: ENGINEERING PHYSICS

NUMBER OF CREDITS: 4

PREREQUISITES:

COURSE DESCRIPTION: This course concentrates on basic mathematics, lasers and nanotechnology etc. The course is taught using problem based approach and laboratory exercises. Upon completing the course, the student would have acquired the competence in physical science to solve a range of complex mechanical engineering problems.

LEVEL 1

SEMESTER:2

COURSE CODE: ENGT 1003

COURSE TITLE: ADVANCE TECHNOLOGY MATHEMATICS (CAL.II)

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Provide the student with the advanced mathematics required to analyze and solve complex problems in mechanical engineering. This course concentrates on matrix theory, vector calculus, differential calculus etc. The course is taught using problem based approach and laboratory exercises using MATLAB software package.

LEVEL 1

SEMESTER: 2

COURSE CODE: ENGT 1004

COURSE TITLE: CONTRACT MANAGEMENT

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: This course concentrates on aspects of procurement, contract and risk management with emphasis on its application. Key components include negotiations, legal aspects, contract types and financial reporting in a modern plant environment. This course concludes with the student developing a mini procurement contract.

LEVEL 1

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: ENGT 1005

COURSE TITLE: COMMUNICATION IN SC, ENGG & TECH

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: Students will become familiar with the interactive relationship between context, message, audience and purpose in workplace writing. Students will learn basic strategies and current conventions for written communication, oral communication, correspondence and short reports, research and documentation, integration of visual elements and correct language usage. Skills and techniques developed in ENGT 1005 are strengthened through presentations, role playing and report writing in ENGT 3003 Engineering Economics.

LEVEL 1**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: ENGT1006****COURSE TITLE: PROJECT MANAGEMENT****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION The course provides the student with the theory and practice of project management. It will enable them to apply the concepts of how to initiate, plan, execute, monitor and control and close out a project within the parameters of scope, time and cost. In the computer laboratory, they will learn the basic theory and application of the use of Microsoft Project software.

LEVEL 2**SEMESTER: 1****COURSE CODE MECT 2001****COURSE TITLE: APPLIED THERMODYNAMICS****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION: This course covers basic concepts of engineering thermodynamics and application to thermodynamic cycles. The course begins with a review of fundamental thermodynamic properties and considers equipment for its measurement. The course applies the zeroth, first laws of thermodynamics (FLT) and introduces the second law (SLT) through problem based activities. Emphasis will be on key thermodynamic cycles and application. Assessing engineering systems such as reciprocating engines, rotating machinery and HVAC is critical and the student will be expected to evaluate key performance parameters.

LEVEL 2**SEMESTER:1****COURSE CODE: ENGT 2001****COURSE TITLE: MATERIALS & PROCESSES****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION: Provides the student with the ability to correctly choose the appropriate materials and metal working process with emphasis on manufacture and operating methods. Emphasis is placed on fundamentals, procedures and concepts and the technology for the metal trade. Provide the plant technologist with up to date information in advances in materials and manufacturing technology. Skills and techniques developed in ENGT 1005 Communication in Sc. Engg & Tech are strengthened through report writing in ENGT 2001 Materials and Processes.

LEVEL 2**SEMESTER: 2****COURSE CODE: MECT 2002****COURSE TITLE: QUALITY CONTROL TECHNOLOGY****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION: This course acquaints the students with QA/QC in product design and development and provides a foundation for MECT 3002 Automated Manufacturing Systems and MECT 3401 Manufacturing Systems Control taken in the 3rd and 4th year of the programme. The course concentrates on the major quality elements: quality management concepts, quality costs, inspection/testing methods, metrology/calibration, sampling principles, fundamental statistical methods and reliability/maintainability in a mfg. / process environment.

LEVEL 2**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: ENGT 2002****COURSE TITLE: CORROSION CONTROL****NUMBER OF CREDITS: 2****PREREQUISITES:**

COURSE DESCRIPTION: The student will be able to analyze and solve basic problems of corrosion in structural materials. Electrochemical and thermodynamic concepts, the different forms of corrosion and contributing factors, corrosion control and monitoring will be covered in a practical sense as it pertains to a mfg./process plant. The course also involves laboratory exercises in practical corrosion science.

LEVEL 2**SEMESTER: 2****COURSE CODE: MECT 2003****COURSE TITLE: DYNAMICS OF MECHANISMS****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION: This course enables the students to execute original designs using applied mechanics for the design of plant components. A strong emphasis has been placed on practical applications, fundamentals, procedures and concepts.

LEVEL 2**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: MECT 2004****COURSE TITLE: DESIGN OF MECHANISMS & LABS****NUMBER OF CREDITS: 4****PREREQUISITES:**

COURSE DESCRIPTION: This course provides the concepts, procedures, data, and decision analysis techniques necessary to design machine elements commonly found in mechanical devices. This course enables the students to execute original designs for machine elements and integrate the elements into a system.

LEVEL 2**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: MECT 2005****COURSE TITLE: MODERN MAINTENANCE MANAGEMENT****NUMBER OF CREDITS: 3****PREREQUISITES: ENGT 1004, ENGT 1006**

COURSE DESCRIPTION: The course provides the student with the major elements to design a PM programme: planning and scheduling, material planning, equipment records (equipment list, nameplate, historical information, critical spares list etc.), run to failure, preventive and predictive maintenance philosophies, housekeeping, waste management, computerized maintenance management system (CMMS) and maintenance productivity evaluation and improvement. The course builds on elements from ENGT 1004 Contract Management and ENGT1006 Project Management. The student will complete a major project to evaluate the PM programme at their work place.

LEVEL 3**SEMESTER: 1****COURSE CODE: ENGT 3001****COURSE TITLE: VIBRATION ANALYSIS****NUMBER OF CREDITS: 2****PREREQUISITES:**

COURSE DESCRIPTION: Provide the student with techniques to analyze some of the basic machinery vibration problems and recommend basic corrective actions to mitigate against equipment failure. Students will be exposed to a condition monitoring program in industry. Upon completion of the course, students would have the foundation necessary for certification at higher levels in the field of machinery vibration analysis. The course also involves laboratory exercise to emphasize various aspects of vibration analysis.

LEVEL 3**SEMESTER: 1****COURSE CODE: MECT 3001****COURSE TITLE: COMPUTER AIDED DESIGN****NUMBER OF CREDITS: 3****PREREQUISITES: MECT 1001, MECT 2003, MECT 2004,**

COURSE DESCRIPTION: The course builds on MECT 1001 Strength of Materials & Lab, MECT 2004 Design of Mechanisms & Lab and MECT 2003 Dynamics of Mechanisms. Emphasis is on application of Solidworks computer based software to aid in effective design of mechanical parts and to visualize mechanical concepts before manufacturing the component/assembly. The software techniques will enhance the technologist's 3-d visualization as well as aid in optimizing design concepts by employing a structured approach

LEVEL 3**SEMESTER: 2****COURSE CODE: MECT 3002****COURSE TITLE: AUTOMATED MANUFACTURING SYSTEMS****NUMBER OF CREDITS: 3****PREREQUISITES: ENGT2001**

COURSE DESCRIPTION: The course will build on fundamentals introduced in ENGT2001 Materials and Processes. Emphasis is on programming CNC machines using a variety of application software for the manufacture of mechanical parts and to visualize mechanical concepts before manufacturing the component/assembly. Mastery of machining software will enhance the technologist's ability to program CNC machines and aid in optimizing design concepts by employing a structured approach.

LEVEL 3**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: ENGT 3002****COURSE TITLE: ORG LEADERSHIP & SUPERVISION****NUMBER OF CREDITS: 3****PREREQUISITES:**

COURSE DESCRIPTION: This course explores organizational leadership within the context of T&T mfg. / process industries. This is a practical course that utilizes role playing as a method for developing specific management techniques. Guest speakers provide relevant insights into HR functions including staff development and training. Key topics in this course include organizational behavior theories and managing resources including people and finances. This course concludes with the student submitting a professional development plan.

LEVEL 3**SEMESTER: 2****COURSE CODE: MECT 3003****COURSE TITLE: ROTATING MACHINES****NUMBER OF CREDITS: 3****PREREQUISITES: ENGT 3001 MECT 2003, MECT 2001, MECT 2005.**

COURSE DESCRIPTION: The course builds on elements from other courses as, ENGT 3001 Vibration Analysis, MECT 2003 Dynamics of Mechanisms, MECT 2001 Applied Thermodynamics, and MECT 2005 Modern Maintenance Management. A strong emphasis has been placed on fundamentals, procedures and concepts as it applies to basic rotating equipment: oil and gas engines, compressors, turbines (steam and gas), positive displacement and centrifugal pumps, lubrication and bearings, planned maintenance and plant safety.

LEVEL 3**SEMESTER: 3 (SUMMER SEMESTER)****COURSE CODE: ENGT 3003****COURSE TITLE: ENGINEERING ECONOMICS****NUMBER OF CREDITS: 3****PREREQUISITES: ENGT 1004, ENGT 1005**

COURSE DESCRIPTION: This course concentrates on aspects of economic management of mfg. / processes in a modern plant environment. Key components include international trade, EXIM policies and regulations and monetary management. At the conclusion of this course the student will be able to conduct a basic macro-economic evaluation of a project. This course builds upon the mini-procurement contract developed in ENGT 1004 contract management allowing the student to perform an economic feasibility analysis. Skills and techniques

developed in ENGL 1005 are strengthened through presentations, role playing and report writing.

LEVEL 3

SEMESTER: 3 (SUMMER SEMESTER)

COURSE CODE: MECT 3004

COURSE TITLE: APPLICATIONS IN STRESS ANALYSIS

NUMBER OF CREDITS: 3

PREREQUISITES: MECT 1001, MECT 2004, MECT 3001

COURSE DESCRIPTION: Students will develop the ability to perform stress analysis calculations in structures, beams, shafts, combined stress situations, thermal stresses and strains in constrained and partially constrained members, welded and riveted joints, pressure vessels, columns. Instructions are intended to build on the fundamentals of: MECT 1001 Strength of Materials & Lab, MECT 2004 Design of Mechanisms & Lab, MECT 3001 Computer Aided Design I. The course provides the concepts, procedures, data, and decision analysis techniques necessary to design machine elements found in mechanical devices. Students completing the course will be able to execute original designs.

LEVEL 4

SEMESTER: 1

COURSE CODE: MECT 3401

COURSE TITLE: MANUFACTURING SYSTEMS CONTROL

NUMBER OF CREDITS: 3

PREREQUISITES: ENGT 3003, MECT 2002, MECT 2005

COURSE DESCRIPTION: This course equips the student with the tools and techniques necessary for the design and analysis of manufacturing systems. Students will be able to identify and design a lucrative product for manufacture based on strategic analysis of the competitive environment and to design a lean enterprise to manufacture this product. The course builds on elements from ENGT 3003 Engineering Economics, MECT 2002 Quality Control Technology, MECT 2005 Modern Maintenance Management

LEVEL 4

SEMESTER: 2

COURSE CODE: ENGT 3401

COURSE TITLE: FINANCIAL CONTROL, BUDGETS, PLANNING

NUMBER OF CREDITS: 3

PREREQUISITES:

COURSE DESCRIPTION: The course is divided into (1) Fundamentals of Accounting and (2) Fundamentals of Capital Budgeting. Upon completing the course students will be able to apply fundamentals of the financial and managerial accounting cycle and prepare basic financial statements. In addition, to accounting theory and practice, topics will also include the classification of business transactions, asset and liability valuation and income determination. Cost determination, allocation procedures and the utilization of financial information for internal management purposes will be emphasized. The course also covers capital budgeting and cash flow analysis.

LEVEL 4

SEMESTER: YEAR LONG

COURSE CODE: MECT 3402

COURSE TITLE: INTEGRATED PROJECT IN INDUST

NUMBER OF CREDITS: 6

PREREQUISITES: All courses with the exception of the co-requisites

CO-REQUISITES: ENGT 3401, MECT-3401

COURSE DESCRIPTION: A capstone project is an important component in technology programmes. The course prepares the students to work independently under the guidance of a supervisor on an approved project of the student's choice, preferably a problem of interest from his/her employer in the area of study and produce deliverables to an agreed project plan within 2 semesters. The course will develop critical thinking, writing a technical and economic feasibility report, oral presentation skills and working under supervision and having deadlines.



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