**TAURANGA GIRLS' COLLEGE**

**YEAR 13 MATHEMATICS WITH CALCULUS 2020**

**GENERAL**:

This course covers AS 91575 (3.3 Trigonometry Internal), AS 91578 (3.6 Differentiation), AS 91573 (3.1 Conics Internal), AS 91579 (3.7 Integration), AS 91578 (3.15 Simultaneous Equations Internal) and AS 91577 (3.5 Complex Numbers Optional). A total of 22 credits are offered in this course. It is appropriate for students with a major interest in continuing the study of Mathematics, Physical Sciences, Engineering or Economics.

The prerequisites for entry into this course are 22 credits in 12MAE and a minimum of Merit or Excellence in AS 91261 (2.6 Algebra) and AS 91262 (2.7 Calculus) and Achieved in AS 91257 (2.2. Graphs). Students who do not meet these prerequisites, but still wish to enter this course, require the permission of the HOD Mathematics.

**ACHIEVEMENT STANDARDS, CREDITS AND COURSE ENDORSEMENT**:This course contains five level three achievement standards (AS), with a total of 22 possible credits. There are two external AS (12 credits) and three internal AS (10 credits) with students having the option to do a third external worth 5 credits. Students aiming to do Calculus Scholarship and wishing to study engineering, will be advised to do this optional standard.

The AS and course outline is given on the following page.Students can gain further recognition of their achievements in this course by attaining an Endorsement with Merit and Excellence. An Excellence Endorsement requires 14 or more credits at Excellence level, while students gaining 14 or more credits at Merit (or Merit and Excellence) will gain a Merit Endorsement. For Course Endorsement, at least 3 of the 14 credits must be from internally assessed standards, and 3 from external assessment.

**ASSESSMENT REQUIREMENTS AND REASSESSMENT** Students are reminded that they need to be familiar with the requirements set out in the Tauranga Girls’ College handbook to students in regard to assessment. Assessments will be required for both formative and terminal assessment and may be used in cases in which an aegrotat assessment is required.

It is noted that there is no reassessment offered for the three internal AS. At least one practice will be completed before each internal AS is formally assessed.

Student work will need to be held by the school for assessment requirements.Full details of the requirements for the internal AS will be detailed in handouts when the relevant topic is being studied.

**COURSE REQUIREMENTS**Attendance is compulsory. Those students who are participating in activities that require them to be absent must ensure that all missed work is completed and assessments are completed by the due date. Assignment deadlines are to be met. If there is genuine cause for delay students should negotiate with their teacher **well in advance**.The text to be issued is Delta Mathematics (Barton) with a variety of others being made available for students who require/would like extra. It may be necessary for students to bring their texts to class with them every day.

Write on commercial workbooks are used in some topics. If students wish to purchase these to keep and write on the cost is $15. If students do not wish to purchase these workbooks they will be made available for reference (but cannot be written on) and must be returned at the end of the topic. The optional extra Complex Numbers Standard will need to be purchased extra at a cost of $6.00.

**GENERAL EXPECTATIONS:**Students are expected to arrive at class promptly and be prepared for work.Students will receive end of term overviews and revision material. It is expected that these will be worked through as part of the process of preparing for the external NCEA examination.Graphics Calculators (Casio fx-9750G PLUS) will be of a very great help in this course and are strongly recommended. Students may buy their own, or from the school.

Completion of homework on a regular basis is *essential* for mastery of this course.

Achievement objectives in the form of I Can Do sheets for each unit will be issued at the beginning of each topic.

It would be advisable that students have access to a device as Google classroom will be used as a forum for communication and recording of lessons.

**SCHOLARSHIP**

The process for scholarship will begin in term 1. Let your teacher know if you are interested in sitting the scholarship examination in this subject. Extra work will be required and the study of AS 91577 (3.5 Complex Numbers) is essential.

The following topic time allocations are only approximate. Minor adjustments to the programme may be made during the year. Some of the topics will be split over a holiday period.

**TAURANGA GIRLS’ COLLEGE YEAR 13MAC COURSE OUTLINE ASSESSMENT SCHEDULE, 2020**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Topic** | **AS / US** | **Int / Ext** | **Credits****AS** | **Wks****(Apx)** | **Conditions for Assessment** | **Vocational Pathways** | **GRADE** |
| **Term One** |  |  |  |  |  |  |  |  |
| Trigonometry  | AS 91575v 2C 3.3 Apply trigonometric methods in solving problems | Int | 4 | 5 ½ 21 hours | One test at end of topic WK 7 | C&I, M&T, Num |  |
| Differentiation  | AS91578v2C 3.6 Apply differentiation methods in solving problems | Ext | (6) | 416 hours | … |  |  |
| **Term Two** |  |  |  |  |  |  |  |  |
| Differentiation Cont…  | AS91578v2 C 3.6 Apply differentiation methods in solving problems | Ext | 6 | 312 hours | AS Test.T2 End Wk 3 |  |  |
| Term 2 Examination  |  |  |  | 1 | No Exam |  |  |
| Conics | AS91573v2C 3.1 Apply the geometry of conic sections in solving problems | Int | 3 | 4 ½ 17 hours | One test at end of topic WK 9 | C&I, M&T, CI, Num |  |
| Integration  | AS91579v2C 3.7 Apply integration methods in solving problems | Ext | (6) | 1 ½ 6 hrs | … |  |  |
| **Term Three** |  |  |  |  |  |  |  |  |
| Integration Cont… | AS91579v2C 3.7 Apply integration methods in solving problems | Ext | 6 | 5 ½ 22 hrs | Test in Exam week |  |  |
| Term 3 Examination |  |  |  | All externals | Exam |  |  |
| Simultaneous Equations | AS91587v2 C 3.15 Apply systems of simultaneous equations in solving problems | Int | (3) | 28 hours | … | C&I, M&T, PI, Num |  |
| **Term Four** |  |  |  |  |  |  |  |  |
| Simultaneous Equations cont… | AS91587v2 C 3.15 Apply systems of simultaneous equations in solving problems | Int | 3 | 2 ½ 9 hours | AS TestWk 3  |  |  |
| **OPTIONAL** |  |  |  |  |  |  |  |
| Complex Numbers | AS91577v2 C 3.5 Apply the algebra of complex numbers in solving problems | Ext | 5 | Terms 1-3 | Complete before Term 3 Exams |  |  |