CURRICULUM

OF

DIPLOMA OF ASSOCIATE ENGINEER

IN

FOOTWEAR TECHNOLOGY

(3- Year Course)

August, 2015

Scheme of Studies
D.A.E. Footwear Technology

Code		Subjects	Total Hrs	T	P	C
Gen	111	Islamiat and Pak Studies	32	1	0	1
ENG	112	English	64	2	0	2
Math	113	Applied Mathematics	96	3	0	3
Phy	122	Applied Physics	128	1	3	2
Ch	112	Applied Chemistry	128	1	3	2
Comp	142	Computer Application	128	1	3	2
Ftw	114	Drawing & Fashion Designing	256	2	6	4
Ftw	124	Design & Pattern Engineering-I	256	2	6	4
Ftw	133	Footwear Production Technology-I	224	1	6	3
TOTAL				**14**	**27**	**23**

Code		Subject	Total Hrs.	T	P	C
Gen	211	Islamiat and Pak Studies	32	1	0	1
Phy	212	Applied Physics/Applied Mechanics	128	1	3	2
Math	212	Applied Mathematics-II	64	2	0	2
MGM	211	Business Communication	32	1	0	1
MGM	221	Business Management and Industrial Economics	32	1	0	1
Ftw	214	Design & Pattern Engineering-II	256	2	6	4
Ftw	223	Footwear Production Technology-II	224	1	6	3
Ftw	232	Grading of Shoe Components	128	1	3	2
Ftw	244	Footwear Materials-I	192	3	3	4
Ftw	254	Foot Anatomy & Last Modeling	192	3	3	4
TOTAL				**16**	**24**	**24**

Code		Subject	Total Hrs.	T	P	C
Gen	311	Islamiat and Pak Studies	32	1	0	1
Ftw	314	Design & Pattern Engineering-III	256	2	6	4
Ftw	323	Footwear Production Technology-III	160	2	3	3
Ftw	332	Footwear CAD/CAM Technology	128	1	3	2
Ftw	344	Footwear Materials-II	192	3	3	4
Ftw	354	Leather Goods Manufacturing & Pattern Making	192	3	3	4
Ftw	362	Quality Control & Material Testing	128	1	3	2
Ftw	371	Marketing and Brand Management	32	1	0	1
Ftw	382	Final Design Project	192	0	6	2
TOTAL				**14**	**27**	**23**

حصہ اول

حصہ اسلامیات

تدریس کی مقاصد

۱۔ قرآن مجید

عمومی مقصد: طالب علم یہ سمجھنے کے قابل ہو کہ اسلام کی تعلیمات کا اصل سرچشمہ قرآن مجید ہے

خصوصی مقاصد: طالب علم اس قابل ہو جائے گا کہ

- ☆ قرآن مجید کی تعریف کر سکے گا
- ☆ قرآن مجید کے نزول کی صورت بیان کر سکے
- ☆ قرآن مجید کی کی دو مدنی سورتوں کی پہچان کر سکے
- ☆ منتخب آیات کا ترجمہ و تشریح کر سکے

عمومی مقصد: یہ سمجھنے کے قابل ہو جائے گا کہ منتخب قرآنی آیات کے ذریعے اسلامی تعلیمات کا مفہوم کیا ہے

- ☆ قرآنی آیات کا ترجمہ تشریح کر سکے
- ☆ قرآنی تعلیمات کی روشنی میں اپنی اور معاشرتی اصلاح کر سکے

2۔ سنت

عمومی مقصد: طالب علم سنت نبوی کی اہمیت اور ضرورت کو اچھی طرح سمجھنے کے قابل ہو جائے گا

خصوصی مقصد:

- ☆ سنت کی تعریف بیان کر سکے
- ☆ سنت کی اہمیت و ضرورت کی وضاحت کر سکے
- ☆ سنت کی روشنی میں اسوہ حسنہ پر عمل کر سکے

3۔ منتخب احادیث نبوی

عمومی مقصد: احادیث کی روشنی میں اخلاقی اقدار سے آگاہی حاصل کر سکے

خصوصی مقصد: احادیث کا ترجمہ و تشریح کر سکے

(ب) **سنت**

1- **سنت کی اہمیت**

1- انما الاعمال بالنیات

2- انما بعث لاتمم مکارم الاخلاق

3- لایومن احدکم حتی یحب الا خیہ ما یحب لنفسہ

4- المسلم من سلم المسلمون من لسانہ ویدہ

5- قل امنت باللہ ثم استقم

6- خیرکم خیرکم لا ھلہ

7- سباب المسلم فسوق وقتالہ کفر

8- المومن اخوالمومن

9- کل المسلم علی المسلم حرام دمہ ومالہ وعرضہ

10- آیۃ المنافق ثلاثۃ اذا حدث کذب واذا اوتمن خان واذا وعد اخلف

2- **دین اسلام** (5)

2.1 اسلام کے بنیادی عقائد کی وضاحت اور انسان کی انفرادی واجتماعی زندگی پران کے اثرات

1- توحید

2- رسالت

3- آخرت

4- ملائکہ

5- آسمانی کتب

2.2 **عبادات** (5)

1- نماز 2- روزہ 3- حج 4- زکوٰۃ

مندرجہ بالا عبادات کی اہمیت وفضیلت، حکمتیں اور انسان کی انفرادی ومعاشرتی زندگی پر اس کے اثرات

حصہ اول

حصہ اسلامیات　　تدریسی مقاصد

1- قرآن مجید

عمومی مقصد۔　طالب علم یہ سمجھنے کے قابل ہو کہ اسلام کی تعلیمات کا اصل سرچشمہ قرآن مجید ہے۔

خصوصی مقاصد۔　طالب علم اس قابل ہو جائے گا کہ:

1- قرآن مجید کی تعریف کر سکے گا۔

2- قرآن مجید کے نزول کی صورت بیان کر سکے

3- قرآن مجید کی مکی و مدنی سورتوں کی پہچان کر سکے

4- منتخب آیات کا ترجمہ و تشریح کر سکے

عمومی مقصد۔　یہ سمجھنے کے قابل ہو جائے گا کہ منتخب قرآنی آیات کے ذریعے اسلامی تعلیمات کا مفہوم کیا ہے۔

خصوصی مقصد۔　طالب علم اس قابل ہو جائے کہ:

1- قرآنی آیات کا ترجمہ و تشریح کر سکے

2- قرآنی تعلیمات کی روشنی میں اپنی اور معاشرتی اصلاح کر سکے

2- سنت

عمومی مقصد۔　طالب علم حدیث نبوی کی اہمیت اور ضرورت کو اچھی طرح سمجھنے کے قابل ہو جائے گا۔

خصوصی مقاصد

☆ سنت کی تعریف بیان کر سکے

☆ سنت کی اہمیت و ضرورت کی وضاحت کر سکے

☆ سنت کی روشنی میں اسوۂ حسنہ پر عمل کر سکے

3- منتخب احادیث نبویہ

عمومی مقصد۔　احادیث کی روشنی میں اخلاقی اقدار سے آگاہی حاصل کر سکے

خصوصی مقاصد۔　احادیث کا ترجمہ و تشریح کر سکے

محمد رسول اللہ صلی اللہ علیہ وسلم کے اسوۂ حسنہ کی پیروی کا جذبہ پیدا ہو سکے۔

4۔ دین اسلام

عمومی مقصد۔ دین اسلام کے بنیادی عقائد اور عبادات کے بارے میں جان سکے اور بیان کر سکے

☆ اسلام کے بنیادی عقائد کی اہمیت بیان کر سکے۔
☆ اسلام کے بنیادی عقائد کے انسان کی انفرادی و اجتماعی زندگی پر پڑنے والے اثرات بیان کر سکے
☆ عبادت کے لفظی و اصطلاحی معنی بیان کر سکے۔
☆ عقیدے اور عبادت کا فرق بیان کر سکے۔
☆ عبادات (نماز، روزہ، حج، زکوٰۃ) کے فوری احکامات اور انسانی زندگی پر ان کے اثرات بیان کر سکے
☆ اسلامی عقائد و عبادات کے مطابق اپنی زندگی ڈھال کر ایک اچھا مسلمان بن سکے۔

نصاب اخلاقیات سال اول

تدریسی مقاصد

عمومی مقصد۔ اعلیٰ اخلاق کی وجہ سے ملکی ترقی میں قابل قدر اضافہ کر سکے۔

خصوصی مقاصد۔ طالب علم اس قابل ہوگا کہ:

- موضوعات کا مطلب بیان کر سکے۔
- عملی زندگی سے مثالوں کی نشاندہی کر سکے۔
- اپنی شخصیت اور معاشرے پر موضوعات کے مثبت اثرات پیدا کرنے کے طریقے بیان کر سکے
- دیانت داری کی اہمیت بیان کر سکے۔
- وفاداری کی اہمیت بیان کر سکے۔
- نظم وضبط کی افادیت بیان کر سکے۔
- صدق بیان کی ضرورت بیان کر سکے۔
- حوصلہ مندی کے فوائد بیان کر سکے
- وقت کی پابندی کے فوائد بیان کر سکے
- صفائی اور باہمی اعتماد سے حسن کارکردگی کو بیان کر سکے
- مصلحت کے فوائد بیان کر سکے

مطالعہ پاکستان

حصہ دوم

تدریسی مقاصد۔ حریت فکر:

عمومی مقصد۔ طالب علم یہ جان لے کہ اسلام میں اور مسلمان قوم میں آزادی فکر کی کیا اہمیت ہے۔

خصوصی مقاصد:

- حریت فکر کا معنی و مفہوم بیان کر سکے۔
- آزادی فکر کی اہمیت بیان کر سکے۔
- خصوصاً اسلام میں آزادی اظہار رائے کی اہمیت بیان کر سکے۔
- ذہنی غلامی کے قومی سطح پر نقصانات بیان کر سکے۔
- جسمانی غلامی کے قومی سطح پر نقصانات بیان کر سکے۔

نظریہ پاکستان

عمومی مقصد۔ نظریہ پاکستان (دین اسلام) سے پوری طرح واقف ہو جائے

خصوصی مقاصد:

- نظریہ کی تعریف بیان کر سکے اور اس کی وضاحت کر
- نظریہ پاکستان کی تعریف کر سکے اور اس کا مفہوم بیان کر سکے۔
- علامہ اقبال اور قائداعظم کے فرمودات کی روشنی میں نظریہ پاکستان بیان کر سکے۔

نظریہ پاکستان کا تاریخی پہلو

عمومی مقصد۔ نظریہ پاکستان کے تاریخی پس منظر سے واقفیت حاصل کر سکے۔

خصوصی مقاصد۔ محمد بن قاسم کے بارے میں بیان کر سکے۔

نصاب سال اول Gen III

حصہ دوم مطالعہ پاکستان کل وقت:12 گھنٹے

موضوعات

- حریت فکر

مسلمان قوم میں آزادی فکر کی تاریخ۔مسلمانوں میں سیاسی آزادی کی اہمیت اور ضرورت۔ذہنی وجسمانی غلامی کے نقصانات

- نظریہ پاکستان

قیام پاکستان کی اساس (دین اسلام) قیام پاکستان کی غرض و غایت۔نظریہ پاکستان کی وضاحت۔نظریہ پاکستان علامہ اقبال اور قائداعظم کے ارشادات کی روشنی میں

- نظریہ پاکستان کا تاریخی پہلو

محمد بن قاسم کی آمد۔مجدد الف ثانی اور شاہ ولی اللہ کی ۔۔۔ ۔سید احمد شہید کی تحریک مجاہدین

- تعلیمی تحریکیں

علی گڑھ۔ندوۃ العلماء۔دیوبند۔مدرسۃ الاسلام (سندھ) اسلامیہ کالج (پشاور) انجمن حمایت اسلام (لاہور)

- محمد بن قاسم کے ہندوستان پر حملہ کی وجہ بیان کر سکے
- محمد بن قاسم کے ہندوستان پر حملہ کے اثرات بیان کر سکے
- وہ بیان کر سکے کہ ہندوستان میں ہندو مسلم دو قومی نظریہ کا نکتہ آغاز کیا ہے۔
- مجدد الف ثانی کی علمی خدمات بیان کر سکے
- شاہ ولی اللہ کی علمی خدمات بیان کر سکے
- مجدد الف ثانی اور شاہ ولی اللہ نے جو تبلیغ دین اور مسلمانوں میں سیاسی شعور پیدا کیا اسے بیان کر سکے۔

علمی تحریکیں

عمومی مقصد۔

- برصغیر کی علمی تحریکوں سے آگاہی حاصل ہو سکے

خصوصی مقاصد

- علی گڑھ۔دیوبند۔ندوۃ العلماء۔مدرسۃ الاسلام۔اسلامیہ کالج۔انجمن حمایت اسلام نے تعلیم کے ذریعہ جو سیاسی شعور مسلمانوں میں پیدا کیا اسے بیان کر سکے۔
- آزادی ہند کے سلسلہ میں تحریک مجاہدین کی خدمات بیان کر سکے۔

Eng-112 ENGLISH

Total contact hours

Theory	64	T	P	C
Practical	0	2	0	2

AIMS At the end of the course, the students will be equipped with cognitive skill to enable them to present facts in a systematic and logical manner to meet the language demands of dynamic field of commerce and industry for functional day-to-day use and will inculcate skills of reading, writing and comprehension.

COURSE CONTENTS

ENGLISH PAPER "A"

1. PROSE/TEXT **16 hrs**

1.1 First eight essays of Intermediate. English Book-II

2. CLOZE TEST **4 hrs**

1.2 A passage comprising 50-100 words will be selected from the text. Every 11th word or any word for that matter will be omitted. The number of missing word will range between 5-10. The chosen word may or may not be the one used in the text, but it should be an appropriate word.

ENGLISH PAPER "B"

3. GRAMMAR **26 hrs**

3.1 Sentence Structure.
3.2 Tenses.
3.3 Parts of speech.
3.4 Punctuation,
3.5 Change of Narration.
3.6 One word for several
3.7 Words often confused

4. COMPOSITION **8 hrs**

4.1 Letters/Messages
4.2 Job application letter
4.3 For character certificate/for grant of scholarship
4.4 Telegrams, Cablegrams and Radiograms, Telexes, Facsimiles
4.5 Essay writing
4.6 Technical Education, Science and Our life, Computers,
Environmental Pollution, Duties of a Student. **4 hrs**

5. TRANSLATION **6 hrs**

5.1 Translation from Urdu into English.
For Foreign Students: A paragraph or a dialogue.

RECOMMENDED BOOKS

1. Intermediate English Book-II.
2. An English Grammar and Composition of Intermediate Level.
3. A Hand Book of English Students by Gatherer

Eng-112 ENGLISH

INSTRUCTIONAL OBJECTIVES

PAPER-A

1. DEMONSTRATE BETTER READING, COMPREHENSION AND VOCABULARY

1.1 Manipulate, skimming and scanning of the text.
1.2 Identify new ideas.
1.3 Reproduce facts, characters in own words
1.4 Write summary of stories

2. UNDERSTAND FACTS OF THE TEXT

2.1 Rewrite words to fill in the blanks recalling the text.
2.2 Use own words to fill in the blanks.

PAPER-B

3. APPLY THE RULES OF GRAMMAR IN WRITING AND SPEAKING

3.1 Use rules of grammar to construct meaningful sentences containing a subjectand a predicate.
3.2 State classification of time, i.e. present, past and future and use verb tensecorrectly in different forms to denote relevant time.
3.3 Identify function words and content words.
3.4 Use marks of punctuation to make sense clear.
3.5 ' Relate what a person says in direct and indirect forms.
3.6 Compose his writings.
3.7 Distinguish between confusing words.

4. APPLY THE CONCEPTS OF COMPOSITION WRITING TO PRACTICALSITUATIONS

4.1 Use concept to construct applications for employment, for character certificate,for grant of scholarship.
4.2 Define and write telegrams, cablegrams and radiograms, telexes, facsimiles
4.3 Describe steps of a good composition writing.
4.4 Describe features of a good composition.
4.5 Describe methods of composition writing.
4.6 Use these concepts to organize facts and describe them systematically inpractical situation;

5. APPLIES RULES OF TRANSLATION

5.1 Describe confusion.
5.2 Describe rules of translation.
5.3 Use rules of translation from Urdu to English in simple paragraph andsentences.

Math-113 APPLIED MATHEMATICS

Total contact hours	96	**T**	**P**	**C**
Theory		3	0	3

Pre-requisite: Must have completed a course of Elective Mathematics at Matric level.

AIMS After completing the course the students will be able to

1. Solve problems of Algebra, Trigonometry, vectors. Menstruation, Matrices and Determinants.
2. Develop skill, mathematical attitudes and logical perception in the use of mathematical instruments as required in the technological fields.
3. Acquire mathematical clarity and insight in the solution of technical problems.

COURSE CONTENTS

1 QUADRATIC EQUATIONS **6 Hrs**

1.1 StandardForm
1.2 Solution
1.3 Nature of roots
1.4 Sum &Productof roots
1 .5 Formation
1.6 Problems

2 ARITHMETIC PROGRESSION AND SERIES **3Hrs**

2.1 Sequence
2.2 Series
2.3 nth term
2.4 Sum of the first n terms
2.5 Means
2.6 Problems

3 GEOMETRIC PROGRESSION AND SERIES **3Hrs**

3.1 nth term
3:2 sum of the first n terms
3.3 Means
3.4 Infinite Geometric progression
3.5 Problems

4 BINOMIAL THEOREM **6 Hrs**

4.1 Factorials
4.2 Binomial Expression
4.3 Binomial Co-efficient
4.4 Statement
4.5 The General Term
4.6 The Binomial Series.
4.7 Problems

5 PARTIAL FRACTIONS **6 Hrs**

5.1 Introduction
5.2 Linear Distinct Factors Case I

5.3 Linear Repeated FactorsCase II
5.4 Quadratic Distinct Factors Case III
5.5 Quadratic Repeated Factors Case IV
5.6 Problems

6 FUNDAMENTALS OF TRIGONOMETRY 6 Hrs
6.1 Angles
6.2 Quadrants
6.3 Measurements of Angles
6.4 Relation between Sexagesimal& circular system
6.5 Relation between Length of a Circular Arc & the Radian Measure of its centralAngle
6.6 Problems

7 TRIGONOMETRIC FUNCTIONS AND RATIOS 6 Hrs
7.1 trigonometric functions of any angle
7.2 Signs of trigonometric Functions
7.3 Trigonometric Ratios of particular Angles
7.4 Fundamental Identities
7.5 Problems

8 GENERAL INDENTITIES 6 Hrs
8.1 The Fundamental Law
8.2 Deductions
8.3 Sum & Difference Formulae
8.4 Double Angle Identities
8.5 Half Angle Identities
8.6 Conversion of sum or difference to products
8.7 Problems

9 SOLUTION OF TRIANGLES 6 Hrs
9.1 The law of Sines
9.2 The law of Cosines
9.3 Measurement of Heights & Distances
9.4 Problems

10 MENSURATION OF SOLIDS 30 Hrs
10.1 Review of regular plane figures and Simpson's Rule
10.2 Prisms
10.3 Cylinders
10.4 Pyramids
10.5 Cones
10.6 Frusta
10.7 Spheres

11 VECTORS 9 Hrs
11.1 Sealers & Vectors
11.2 Addition & Subtraction
11.3 The unit Vectors I, j, k
11.4 Direction Cosines
11.5 Sealer or Dot Product

11.6 Deductions
11.7 Dot product in terms of orthogonal components
11.8 Deductions
11.9 Analytic Expression for a x b.
11.10 Problems.

12 MATRICES AND DETERMINANTS 9 Hrs

12.1 Definition of Matrix
12.2 Rows & Columns
12.3 Order of a Matrix
12.4 Algebra of Matrices
12.5 Determinants
12.6 Properties of Determinants
12.7 Solution of Linear Equations
12.8 Problems

REFERENCE BOOKS

1. GhulamYasinMinhas - Technical Mathematics Vol-I, IlmiKitabKhana Lahore.
2. Prof. Riazali Khan - Polytechnic Mathematic Series Vol I & II, Majeed Sons, Faisalabad
3. Prof. Sana UllahBhatti - A Text Book of Algebra and Trigonometry, Punjab Text Book Board, Lahore.

Math-113 APPLIED MATHEMATICS-I

INSTRUCTIONAL OBJECTIVES

1 USE DIFFERENT METHODS FOR THE SOLUTION OF QUADRATIC EQUATIONS

1.1 Define a standard quadratic equation.
1.2 Use methods of factorization and method of completing the square for solvingthe equations.
1.3 Derive quadratic formula.
1.4 Write expression for the discriminant
1.5 Explain nature of the roots of a quadratic equation.
1.6 Calculate sum and product of the roots.
1.7 Form a quadratic equation from the given roots.
1.8 Solve problems involving quadratic equations.

2 UNDERSTAND APPLY CONCEPT OF ARITHMETIC PROGRESSION AND SERIES

2.1 Define an Arithmetic sequence and a series
2.2 Derive formula for the nth term of an A.P.
2.3 Explain Arithmetic Mean between two given numbers
2.4 Insert n Arithmetic means between two numbers
2.5 Derive formulas for summation of an Arithmetic series
2.6 Solve problems on Arithmetic Progression and Series

3 UNDERSTAND GEOMETRIC PROGRESSION AND SERIES

3.1 Define a geometric sequence and a series.
3.2 Derive formula for nth term of a G.P.
3.3 Explain geometric mean between two numbers.
3.4 Insert n geometric means between two numbers.
3.5 Derive a formula for the summation of geometric Series.
3.6 Deduce a formula for the summation of an infinite G.P.
3.7 Solve problems using these formulas.

4 EXPAND AND EXTRACT ROOTS OF A BINOMIAL

4.1 State binomial theorem for positive integral index.
4.2 Explain binomial coefficients: (n,0), (n,1)……..(n,r),…….(n,n)
4.3 Derive expression for the general term.
4.4 Calculate the specified terms.
4.5 Expand a binomial of a given index. -
4.6 Extract the specified roots
4.7 Compute the approximate value to a given decimal place.
4.8 Solve problems involving binomials.

5 RESOLVE A SINGLE FRACTIONINTO PARTIALFRACTIONS USINGDIFFERENT METHODS.

5.1 Define a partial fraction, a proper and an improper fraction.
5.2 Explain all the four types of partial fractions.
5.3 Set up equivalent partial fractions for each type.
5.4 Explain the methods for finding constants involved.
5.5 Resolve a single fraction into partial fractions.
5.6 Solve problems involving all the four types.

6 UNDERSTAND SYSTEMS OF MEASUREMENT OF ANGLES.

6.1 Define angles and the related terms.

6.2 Illustrate the generation of angle.
6.3 Explain sexagesimal and circular systems for the measurement of angles
6.4 Derive the relationship between radian and degree.
6.5 Convert radians to degrees and vice versa.
6.6 Derive a formula for the circular measure of a central angle.
6.7 Use this formula for solving problems.

7 APPLY BASIC CONCEPTS AND PRINCIPLES OF TRIGONOMETRICFUNCTIONS
7.1 Define the basic trigonometric functions/ratios of an angle as ratios of the sidesof a right triangle.
7.2 Derive fundamental identities.
7.3 Find trigonometric ratios of particular angles.
7.4 Draw the graph of trigonometric functions.
7.5 Solve problems involving trigonometric functions.

8 USE TRIGONOMETRIC IDENTITIES IN SOLVING TECHNOLOGICALPROBLEMS
8.1 List fundamental identities
8.2 Prove the fundamental law
8.3 Deduce important results
8.4 Derive-sum and difference formulas
8.5 Establish half angle, double angle & triple angle formulas
8.6 Convert sum or difference into product& vice versa
8.7 Solve problems

9 USE CONCEPTS, PROPERTIES AND LAWS OF TRIGONOMETRIC FUNCTIONS FOR SOLVING TRIANGLES
9.1 Define angle of elevation and angle of depression.
9.2 Prove the law of sins and the law of cosines.
9.3 Explain elements of a triangle.
9.4 Solve triangles and the problems involving heights and distances.

10 USE PRINCIPLES OF MENSTRUATION IN FINDING SURFACES, VOLUMEAND WEIGHTS OF SOLIDS.
10.1 Define menstruation of plane and solid figures
10.2 List formulas for perimeters & areas of plane figure.
10.3 Define pyramid and cone.
10.4 Define frusta of pyramid and cone.
10.5 Define a sphere and a shell.
10.6 Calculate the total surface and volume of each type of solid.
10.7 Compute weight of solids.
10.8 Solve problems of these solids.

11. USE THE CONCEPT AND PRINCIPLES OF VECTORS IN SOLVINGTECHNOLOGICAL PROBLEMS.
11.1 Define vector quantity.
11.2 Explain addition and subtraction of vector
11.3 Illustrate unit vectors I, j, k.
11.4 Express a vector in the component form.
11.5 Explain magnitude, unit vector, directionconsines of a vector.
11.6 Derive analytic expression for dot product and cross product of two vector.
11.7 Deduce conditions of perpendicularly and parallelism of two vectors.

11.8 Solve problems

12. USE THE CONCEPT OFMATRICES & DETERMINANTS IN SOLVING TECHNOLOGICAL PROBLEMS

12.1 Define a matrix and a determinant.
12.2 List types of matrices.
12.3 Define transpose, ad joint and inverse of a matrix.
12.4 State properties of determinants.
12.5 Explain basic concepts.
12.6 Explain algebra of matrices.
12.7 Solve linear equation by matrices.
12.8 Explain the solution of a determinant.
12.9 Use Crammers Rule for solving linear equations

Phy-122 APPLIED PHYSICS

Total Contact Hours

Theory	32	**T**	**P**	**C**
Practical	96	1	3	2

AIMS: The students will be able to understand the fundamental principles and concept of physics, use these to solve problems in practical situations/technical courses and understand concepts to learn advance physics/technical courses,

COURSE CONTENTS

1 MEASUREMENTS. 2 Hrs

1.1 Fundamental units and derived units
1.2 Systems of measurement and S.I. units
1.3 Concept of dimensions, dimensional formula
1.4 Conversion from one system to another
1.5 Significant figures

2. SCALARS AND VECTORS. 4 Hrs

2.1 Revision of head to tail rule
2.2 Laws of parallelogram, triangle and polygon of forces
2.3 Resolution of a vector
2.4 Addition of vectors by rectangular components
2.5 Multiplication of two vectors, dot product and cross product

3. MOTION 4 Hours

3.1 Review of laws and equations of motion
3.2 Law of conservation of momentum
3.3 Angular motion
3.4 Relation between linear and angular motion
3.5 Centripetal acceleration and force
3.6 Equations of angular motion

4. TORQUE, EQUILIBRIUM AND ROTATIONAL INERTIA

4.1 Torque
4.2 Centre of gravity and centre of mass
4.3 Equilibrium and its conditions
4.4 Torque and angular acceleration
4.5 Rotational inertia

5. WAVE MOTION 5 Hrs

5.1 Review Hooke's law of elasticity,
5.2 Motion under an elastic restoring force.
5.3 Characteristics of simple harmonic motion
5.4 S.H.M. and circular motion
5.5 Simple pendulum
5.6 Wave form of S.H.M.
5.7 Resonance
5.8 Transverse vibration of a stretched string

6.	**SOUND**	**5 Hrs**
6.1	Longitudinal waves	
6.2	Intensity, loudness, pitch and quality of sound	
6.3	Units of Intensity of level and frequency response of ear	
6.4	Interference of sound waves silence zones, beats	
6.5	Acoustics	
6.6	Doppler effect	
7.	**LIGHT**	**5 Hrs**
7.1	Review laws of reflection and refraction	
7.2	Image formation by mirrors and lenses	
7.3	Optical instruments	
7.4	Wave theory of light	
7.5	Interference, diffraction, polarization of light waves	
7.6	Applications of polarization in sunglasses, optical activity and stress analysis	
8.	**OPTICAL FIBER**	**2 Hrs**
8.1	Optical communication and problems	
8.2.	Review total internal reflection and critical angle	
8.3	Structure of optical fiber	
8.4	Fiber material and manufacture	
8.5	Optical fiber - uses.	
9.	**LASERS**	**3 Hrs**
9.1	Corpuscular theory of light	
9.2	Emission and absorption of light	
9.3	Stimulated absorption and emission of light	
9.4	Laser principle	
9.5	Structure and working of lasers	
9.6	Types of lasers with brief description.	
9.7	Applications (basic concepts)	
9.8	Material processing	
9.9	Laser welding	
9.10	Laser assisted machining	
9.11	Micro machining	
9.12	Drilling scribing and marking	
9.13	Printing	
9.14	Lasers in medicine	

RECOMMENDED BOOKS

1. TahirHussain, Fundamentals of Physics Vol-I and II
2. FaridKhawaja, Fundamentals of Physics Vol-I and II
3. Wells and Slusher, Schaum's Series Physics.
4. Nelkon and Oyborn, Advanced Level Practical Physics
5. MehboobIlahi Malik and Inam-ul-Haq, Practical Physics
6. Wilson, Lasers - Principles and applications
7. M. Aslam Khan and M. AkramSandhu, Experimental Physics Note Book

Phy-122 APPLIED PHYSICS

INSTRUCTIONAL OBJECTIVES

1 USE CONCEPTS OF MEASUREMENT TO PRACTICAL SITUATIONS AND TECHNOLOGICAL PROBLEMS

1. 1 Write dimensional formulae for physical quantities
1.2 Derive units using dimensional equations
1.3 Convert a measurement from one system to another
1.4 Use concepts of measurement and significant figures in problem solving.

2 USE CONCEPTS OF SCALARS AND VECTORS IN SOLVING PROBLEMS INVOLVING THESE CONCEPTS

2.1 Explain laws of parallelogram, triangle and polygon offorces
2.2 Describe method of resolution of a vector into components
2.3 Describe method of addition of vectors by rectangular components
2.4 Differentiate between dot product and cross product of vectors
2.5 Use the concepts in solving problems involving addition resolution and multiplication of vectors

3 USE THE LAW OF CONSERVATION OF MOMENTUM AND CONCEPTS OF ANGULAR MOTION TO PRACTICAL SITUATIONS

3.1 Use law of conservation' of momentum to practical/technological problems
3.2 Explain relation between linear and angular motion
3.3 Use concepts and equations of angular motion to solve relevant technological problems

4 USE CONCEPTS OF TORQUE, EQUILIBRIUM AND ROTATIONAL INERTIA TO PRACTICAL SITUATION/PROBLEMS

4.1 Explain Torque
4.2 Distinguish between Centre of gravity and centre of mass
4.3 Explain rotational Equilibrium, and its conditions
4.4 Explain. Rotational Inertia giving examples
4.5 Use the above concepts in solving technological problems.

5 USE CONCEPTS OR WAVE MOTION IN SOLVING RELEVANT PROBLEMS

5.1 Explain Hooke's Law of Elasticity
5.2 Derive formula for Motion under an elastic restoring force
5.3 Derive formulae for simple harmonic motion and simple pendulum
5.4 Explain wave form with reference to S.H.M. and circular motion
5.5 Explain Resonance
5.6 Explain Transverse vibration of a stretched 'string
5.7 Use the above concepts and formulae of S.H.M. to solve relevant problems.

6 UNDERSTAND concepts OF SOUND

6.1 Describe longitudinal wave and its propagation
6.2 Explain the concepts: Intensity, loudness, pitch and quality of sound
6.3 Explain units of Intensity of level and frequency response of ear
6.4 Explain phenomena of silence zones, beats
6.5 Explain Acoustics of buildings.
6.6 Explain Doppler Effect giving mathematical expressions.

7 USE THE CONCEPTS OF GEOMETRICAL OPTICS TO MIRRORS AND LENSES

7.1 Explain laws of reflection and refraction
7.2 Use mirror formula to solve problems
7.3 Use the concepts of image formation by mirrors and lenses to describe working of optical instruments, e.g. microscopes, telescopes, camera and sextant.

8 UNDERSTAND WAVE THEORY OF LIGHT

8.1 Explain wave theory of light
8.2 Explain phenomena of interference, diffraction, polarization of light waves
8.3 Describe uses of polarization given in the course contents.

9 UNDERSTAND THE STRUCTURE, WORKING AND USES OF OPTICAL FIBER

9.1 Explain the structure of the Optical Fiber
9.2 Explain its principle of working
9.3 Describe use of optical fiber in industry and medicine.

Phy-122 APPLIED PHYSICS

LIST OF PRACTICALS

1. Draw graphs representing the functions:
a) y=mx for m=0, 0.5, 1, 2
b) $y=x^2$
c) y = l/x
2. Find the volume of a given solid cylinder using vernier calipers.
3. Find the area of cross-section of the given wire using micrometer screw gauge.
4. Prove that force is directly proportional to (a) mass, (b) acceleration, using fletchers trolley
5. Verify law of parallelogram of forces using Grave-sands apparatus.
6. Verify law of triangle of forces and Lami's theorem
7. Determine the weight of a given body using
   a) Law of parallelogram of forces
   b) Law of triangle of forces
   c) Lami's theorem
8. Verify law of polygon of forces using Grave-sands apparatus.
9. Locate the position and magnitude of resultant of like parallel forces.
10. Determine the resultant of two unlike parallel forces.

II. Find the weight of a given body using principle ofmoments.

12. Locate the centre of gravity of regular and irregular shaped bodies.
13. Find Young's Modules of Elasticity of a metallic wire.
14. Verify Hooke's Law using helical spring.
15. Study of frequency of stretched string with length.
16. Study of variation of frequency of stretched string with tension.
17. Study resonance of air columnin resonance tube and find velocity of sound.
18. Find the frequency of the given tuning fork using resonance tube.
19. Find velocity of sound in rod by Kundt's tube

20, Verify rectilinear propagation of light and study shadow formation.

21. Study effect of rotation of plane mirror on reflection.
22. Compare the refractive indices of given glass slabs.
23. Find focal length of concave mirror by locating centre of curvature.
24. Find focal length of concave mirror by object and image method
25. Find focal length of concave mirror with converging lens.
26. Find refractive index of glass by apparent depth.
27. Find refractive index of glass by spectrometer.
28. Find focal length of converging lens by plane mirror.
29. Find focal length of converging lens by displacement method.
30. Find focal length of diverging lens using converging lens.
31. Find focal length of diverging lens using concave mirror.
32. Find angular magnification of an astronomical telescope.
33. Find angular magnification of a simple microscope (Magnifying Glass)
34. Find angular magnification of a compound microscope.
35. Study working and structure of camera.
36. Study working and structure of sextant.
37. Compare the different scales of temperature and verify the conversion formula.
38. Determine the specific heat of lead shots.
39. Find the coefficient of linear expansion of a metallic rod.
40. Find the heat of fusion of ice.
41. Find the heat of vaporization.
42. Determine relative humidity using hygrometer:

Ch-112 APPLIED CHEMISTRY

T	P	C
1	3	2

Total Contact Hours

Theory **32**

Practical **96**

Pre-requisite: The student must have studied the subject of elective chemistry at Secondary, school level.

AIMS After studying this course a student will be able to;

1. Understand the significance and role of chemistry in the development of modern technology.
2. Become acquainted with the basic principles of chemistry as applied in the study of relevant Technology.
3. Know the scientific methods for production, properties and use of materials of industrial & .technological significance.
4. Gains skill for the efficient conduct of practical's in a Chemistry lab.

COURSE CONTENTS

1 INTRODUCTION AND FUNDAMENTAL CONCEPTS **2 Hrs**

1.1 Orientation with reference to this technology

1.2 Terms used & units of measurements in the study of chemistry

1.3 Chemical Reactions & their types

2 ATOMIC STRUCTURE **2 Hrs**

2.1 Sub-atomic particles

2.2 Architecture of atoms of elements, Atomic No. & Atomic Weight

2.3 The periodic classification of elements periodic law

2.4 General characteristics of a period and group

3 CHEMICAL BOND **2 Hrs**

3.1 Nature of chemical Bond

3.2 Electrovalent bond with examples

3.3 Covalent Bond (Polar and Non-polar, sigma & Pi Bonds with examples

3.4 Co-ordinate Bond with examples

4 WATER **2 Hrs**

4.1 Chemical nature and properties.

4.2 Impurities

4.3 Hardness of water (types, causes & removal)

4.4 Scales of measuring hardness (Degrees Clark

4.5 Boiler feed water, scales & treatment

4.6 Sea-water desalination, sewage treatment

5 ACIDS, BASES AND SALTS **2 Hrs**

5.1 Definitions with examples

5.2 Properties, their strength, basicity & Acidity

5.3 Salts and their classification with examples

5.4 pH-value and scale

6 OXIDATION & REDUCTION **2 Hrs**

6.1	The process, definition& examples	
6.2	Oxidizing and reducing agents	
6.3	Oxides and their classifications	
7	**NUCLEAR CHEMISTRY**	**2 Hrs**
7.1	Introduction	
7.2	Radioactivity (alpha, beta and gamma rays)	
7.3	Half life process	
7.4	Nuclear reaction & transformation of elements	
8	**CEMENT**	**2 Hrs**
8.1	Introduction	
8.2	Composition and manufacture	
8.3	Chemistry of setting and hardening	
8.4	Special purpose cements	
9	**GLASS**	**2 Hrs**
9.1	Composition and raw material	
9.2	Manufacture	
9.3	Varieties and uses	
10	**PLASTICS AND POLYMERS**	**2 Hrs**
10.1	Introduction and importance	
10.2	Classification	
10.3	Manufacture	
10.4	Properties and uses	
11	**PAINTS, VARNISHES AND DISTEMPER**	**2 Hrs**
11.1	Introduction	
11.2	Constituents	
11.3	Preparation and uses	
12	**CORROSION**	**2 Hrs**
12.1	Introduction with causes	
12.2	Types of corrosion	
12.3	Rusting of iron	
12.4	Protective measures against-corrosion	
13	**REFRACTORY MATERIALS AND ABRASIVE**	**2 Hrs**
13.1	Introduction to Refractories	
13.2	Classification of Refractories	
13.3	Properties and Uses	
13.4	Introduction to Abrasives	
13.5	Artificial and Natural Abrasives and their uses	
14	**ALLOYS**	**2 Hrs**
14.1	Introduction with need	
14.2	Preparation and Properties	
14.3	Some Important alloys and their composition	

14.4 Uses

15 FUELS AND COMBUSTION **2 Hrs**

15.1 Introduction of fuels
15.2 Classification of fuels
15.3 Combustion
15.4 Numerical Problems of Combustion

16 LUBRICANTS **1 Hr**

16.1 Introduction.
16.2 Classification.
16.3 Properties of lubricants.
16.4 Selection of lubricants:

17 POLLUTION **1 Hr**

17.1 The problem and its dangers.
17.2 Causes of pollution.
17.3 Remedies to combat the hazards of pollution.

BOOKS RECOMMENDED

1. Text Book of Intermediate Chemistry (I & II)
2. Ilmi Applied Science by Sh. Atta Muhammad
3. Polytechnic Chemistry by J. N. Reedy Tata McGraw Hill (New Delhi)
4. Chemistry for Engineers by P.C. Jain (New Delhi, India)

Ch-112 APPLIED CHEMISTRY

INSTRUCTIONAL OBJECTIVES

1 UNDERSTAND THE SCOPE, SIGNIFICANCE AND FUNDAMENTAL ROLE OF THE SUBJECT

1.1 Define chemistry and its important terms
1.2 State the units of measurements in the study of chemistry
1.3 Write chemical formula of common compounds
1.4 Describe types of chemical reactions with examples

2 UNDERSTAND THE STRUCTURE OF ATOMS AND ARRANGEMENT OF SUB ATOMIC PARTICLES IN THE ARCHITECTURE OF ATOMS

2.1 Define atom.
2.2 State the periodic law of elements.
2.3 Describe the fundamental sub atomic particles
2.4 Distinguish between atomic ho. and mass no.; isotopes and isobars
2.5 Explain the arrangements of electrons in different shells and sub energy levels
2.6 Explain the grouping and placing of ^elements' in the periodic table

3 UNDERSTAND THE NATURE OF CHEMICAL LBOUND

3.1 Define chemical bond
3.2 Describe the nature of chemical bond
3.3 Differentiate .between electrovalent an^ covalent bonding
3.4 Explain the formation of polar and non polar, sigma and pi-bond with examples
3.5 Describe the nature of coordinate bond with examples

4 UNDERSTAND THE CHEMICAL NATURE OF WATER

4.1 Describe the chemical nature of water with its formula
4.2 Describe the general impurities present in water
4.3 Explain the causes and methods to removing hardness of water
4.4 Express hardness .in different units like mg/Iiter, p.p.m, degrees Clark and degrees French
4.5 Describe the formation and nature of scales in boiler feed water
4.6 Explain the method for the treatment of scales
4.7 Explain the sewage treatment and desalination of sea water

5 UNDERSTAND THE NATURE OF ACIDS, BASES AND SALTS

5.1 Define acids, bases and salts with examples
5.2 State general properties of acids and bases
5.3 Differentiate between acidity and basicity and use the related terms
5.4 Define salts, state their classification with examples
5.5 Explain p-H value of solution and pH scale

6 UNDERSTAND THE PROCESS OF OXIDATION AND REDUCTION

6.1 Define oxidation
6.2 Explain the oxidation process with examples
6.3 Define reduction
6.4 Explain reduction process with examples
6.5 Define oxidizing and reducing-agents and give it least six examples of each
6.6 Define oxides
6.7 Classify the oxides and give example

7 UNDERSTAND THE FUNDAMENTALS OF NUCLEAR CHEMISTRY

7.1 Define nuclear chemistry and radio activity
7.2 Differentiate between alphas, Beta and Gamma particles
7.3 Explain hall-life process
7.4 Explain at least six nuclei reactions resulting in the transformation of some elements
7.5" State important uses of isotopes

8 UNDERSTAND THE MANUFACTURE, SETTING AND HARDENING CEMENT

8.1 Define port land cement and give its composition
8.2 Describe the method of manufacture
8.3 Describe the chemistry of setting and hardening of cement
8.4 Distinguish between ordinary and special purpose cement

9 UNDERSTAND THE PROCESS OF MANUFACTURE OF GLASS.

9.1 Define glass
9.2 Describe its composition and raw materials
9.3 Describe the manufacture of glass
9.4 explain its varieties and uses

10 UNDERSTAND THE NATURE AND IMPORTANCE OF PLASTICS POLYMERS

10.1. Define plastics and polymers
10.2 Explain the mechanism of polymerization
10.3 Describe the preparation and uses of some plastics/polymers

11 KNOW THE.CHEMISTRY OF PAINTS, VARNISHES AND DISTEMPERS

11.1 Define paints, varnishes and distemper
11.2 State composition of each
11.3 State methods of preparation of each and their uses

12 UNDERSTAND THE PROCESS OF CORROSION WITH ITS CAUSES AND TYPES

12.1 Define corrosion
12.2 Describe different types of corrosion
12.3 State the causes of corrosion
12.4 Explain the process of rusting of iron
J2.5 Describe methods to prevent/control corrosion

13 UNDERSTAND THE NATURE OF REFRACTORY MATERIALS AND ABRASIVE

13.1 Define refractory materials
13.2 Classify refractory materials
13.3 Describe properties and uses of refractories
13.4 Define abrasive.
13.5 Classify natural and artificial abrasives
13.6 Describe uses of abrasives

14 UNDERSTAND THE NATURE AND IMPORTANCE OF ALLOYS

14.1 Define alloy
14.2 Describe different methods for the preparation of alloys
14.3 Describe important properties of alloys
14 4 Enlist some important alloys with their composition, properties and uses

15 UNDERSTAND THE NATURE OF FUELS AND THEIR COMBUSTION

15.1 Define fuels
15.2 Classify fuels and make distinction of solid, liquid & gaseous fuels
15.3 Describe important Fuels
15.4 Explain combustion
15.5 Calculate air quantities in combustion, gases

16 UNDERSTAND THE NATURE OF LUBRICANTS.

16.1 Define a lubricant
16.2 Explain the uses of lubricants
16.3 Classify lubricants and cite examples
16.4 State important properties of oils, greases and solid lubricants
16.5 State the criteria for the selection of lubricant tor, particular purpose/job

17 UNDERSTAND THENATURE OF POLLUTION

17.1 Define Pollution (air. water, food)
17.2 Describe the causes of environmental pollution.
17.3 Enlist some common pollutants.
17.4 Explain methods to prevent pollution

CH-112 APPLIED CHEMISTRY 96 Hours

1. To introduce the common apparatus, glassware and chemical reagents used in the chemistry lab.
2. To purify a chemical substance by crystallization.
3. To separate a mixture of sand and salt.
4. To find the melting point of substance.
5. To find the pH of a solution with pH paper.
6. To separate a mixture of inks by chromatography.
7. To determine the co-efficient of viscosity of benzene with the help of Ostwald vasomotor.
8. To find the surface tension of a liquid with a stalagmometer.
9. To perform electrolysis of water to produce Hydrogen and Oxygen.
10. To determine the chemical equivalent of copper by electrolysis of Cu SO.
11. To get introduction with the scheme of analysis of salts for basic radicals.
12. To analyse 1st group radicals (Ag^{+} - Pb^{++} - Hg^{+}).
13. To make practice for detection 1st group radicals.
14. To get introduction with the scheme of II group radicals.
15. To detect and confirm II-A radicals (hg^{++}, Pb^{++++}, Cu^{+}, Cd^{++}, Bi^{+++}).
16. To detect and confirm II-B radicals Sn^{+++}, Sb^{+++}, As^{+++}).
17. To get introduction with the scheme of III group radicals (Fe^{+++} - Al^{+++}, Cr^{+++})
18. To detect and confirm Fe^{+++}, Al^{+++} and Cr^{+++}.
19. To get introduction with he scheme of IV group radicals.
20. To detect and confirm An^{++} and Mn^{++} radicals of IV group.
21. To detect and conform Co^{++} and Ni^{++} radicals of IV group.
22. To get introduction with the Acid Radical Scheme.
23. To detect dilute acid group.
24. To detect and confirm CO''_3 and HCO'_3 radicals.
25. To get introduction with the methods/apparatus of conducting volumetric estimations.
26. To prepare standard solution of a substance.
27. To find the strength of a given alkali solution.
28. To estimate HCO'_3 contents in water.
29. To find out the %age composition of a mixture solution of KNO_3 and KOH volumetrically.
30. To find the amount of chloride ions (Cl') in water volumetrically.

COMP-142 COMPUTER APPLICATIONS

Total Contact Hours	T	P	C
Theory: 32 Hrs	1	3	2
Practical: 96 Hrs			

Pre-requisites: None

AIMS:This subject will enable the student to be familiar with the fundamental concepts of Computer Science. He will also learn MS-Windows, MS-Office, and Internet to elementary level.

Course Contents:

1. ELECTRONIC DATA PROCESSING (E.D.P.) 6 Hrs

1.1 Basic Terms of Computer Science Data & its, types, Information, Hardware, Software
1.2 Computer & its types
1.3 Block diagram of a computer system
1.4 BIT, Byte, RAM & ROM
1.5 Input &Output devices
1.6 Secondary storage devices
1.7 Types of Software
1.8 Programming Languages
1.9 Applications of computer in different fields
1.10 Application in Engineering, Education & Business

2,MS-WINDOWS 2 Hrs

2.1 Introduction to Windows
2.2 Loading & Shut down process
2.3 Introduction to Desktop items (Creation of Icons, Shortcut, Folder & modify Taskbar)
2.4 Desktop properties
2.5 Use of Control Panel
2.6 Searching a document

3.MS-OFFICE (MS-WORD) 8 Hrs

3.1 Introduction to MS-Office
3.2 Introduction to MS-Word & its Screen
3.3 Create a new document
3.4 Editing & formatting the text
3.5 Saving & Opening a document
3.6 Page setup (Set the Margins & Paper)
3.7 Spell Check & Grammar
3.8 Paragraph Alignment
3.9 Inserting Page numbers, Symbols, Text box & Picture in the document
3.10 Use the different Format menu drop down commands(Drop Cap, Change Case, Bullet & Numbering and Border & Shading)
3.11 Insert the 'Table and it's Editing
3.12 Printing the document
3.13 Saving a document file as PDF format

4.MS-OFFICE (MS-EXCEL) 9 Hrs

4.1 Introduction to MS-Excel & its Screen
4.2 Entering data & apply formulas in worksheet
4.3 Editing & Formatting the Cells, Row & Colum
4.4 Insert Graphs in sheet
4.5 Page setup, Print Preview & Printing
4.6 Types & Categories of Charts

5.MS. OFFICE (MS-POWER POINT) 4 Hrs

5.1 Introduction to MS-Power point
5.2 Creating a, presentation
5.3 Editing & formatting a text box
5.4 Adding pictures & colors to a slide
5.5 Making slide shows
5.6 Slide Transition

6.INTERNET & E-MAIL 3Hrs

6.1 Introduction to Internet & browser window
6.2 Searching, Saving and Print a page from internet
6.3 Creating, Reading & Sending E-Mail
6.4 Explain some advance features over the internet and search engines

COMP-142 COMPUTER APPLICATIONS

Instructional Objectives:

1. UNDERSTAND ELECTRONIC DATA PROCESSING (E.D.P)

1.1. Describe Basic Terms of Computer Science.Data& its Types, Information, Hardware, Software
1.2. Explain Computer & its types
1.3. Explain Block diagram of a computer system
1.4. State the terms such as BIT, Byte, RAM & ROM
1.5. Identify Input & Output devices
1.6. Describe Secondary Storage devices
1.7. Explain Types of Software
1.8. Introduction to Programming Language
1.9. Explain Applications of computer in different fields
1.10. Application in Engineering, Education & Business

2. UNDERSTAND MS-WINDOWS

2.1 Explain Introduction to Windows
2.2 Describe Loading & Shut down process
2.3 Explain Introduction to Desktop items(Creation of Icons, Shortcut, Folder & modify Taskbar)
2.4 Explain Desktop properties
2.5 Describe Use' of Control Panel (add/remove program, time & date, mouse and create user account)
2.6 Explain the method of searching a document

3. UNDERSTAND MS-OFFICE (MS-WORD)

3.1 Explain Introduction to MS-Office
3.2 Describe -Introduction to MS-Word & its Screen
3.3 Describe create a new document
3.4 Explain Editing & formatting the text
3.5 Describe saving & Opening a document
3.6 Explain Page setup, (Set the Margins & Paper)
3.7 Describe Spell Check & Grammar
3.8 Explain Paragraph Alignment
3.9 Explain Inserting Page numbers, Symbols, Text box & Picture in the document
3.10 Describe Use the different Format menu drop down commands(Drop Cap, Change Case, Bullet &Numbering and Border & Shading)
3.11 Explain Insert the Table and its Editing and modifying
3.12 Describe printing the document
3.13 Describe the method of file saving as a PDF Format

4. UNDERSTAND MS-OFFICE (MS-EXCEL)

4.1 Explain Introduction to MS-Excel & its Screen
4.2 Describe Entering data & apply formulas in worksheet
4.3 Describe Editing &Formatting the, Cells, Row & Column
4.4 Explain Insert Graphs in sheet
4.5 Describe Page setup, Print preview & Printing
4.6 Explain in details formulas for sum, subtract, multiply, divide, average

4.7 Explain in details the types of charts e.g pie chart, bar chart

5. UNDERSTAND MS-OFFICE (MS-POWER POINT)

5.1 Describe Introduction to MS-Power point
5.2 Explain creating a presentation
5.3 Describe Editing & formatting a text box
5.4 Explain Adding pictures & colors to a slide
5.5 Describe Making slide shows
5.6 Explain Slide Transitions

6. UNDERSTAND INTERNET &E-MAIL

6.1 Explain Introduction to Internet and browser window
6.2 Explain Searching, Saving and Print a page from internet
6.3 Describe Creating, Reading & Sending E-Mail and attachments
6.4 Explain some advance features over the internet and how to search topics on different search engines

Recommended Textbooks:

1. **Bible Microsoft Office 2007 by John Walkenbach**
2. **Bible Microsoft Excel 2007 by John Walkenbach**
3. **Bible Microsoft PowerPoint 2007 by John Walkenbach**

COMP-142 COMPUTER APPLICATIONS 96 Hours

List of Practical:

Identify key board, mouse, CPU, disk drives, disks, monitor, and printer and **3Hrs**

MS WINDOWS XP **12 Hrs**

1.1 Practice of loading and shutdown of operating system
1.2 Creating items (icons, shortcut, folders etc) and modifying taskbar
1.3 Changing of wallpaper, screensaver, and resolution
1.4 Practice of control panel items (add/remove, time and date,mouse, and create user account)

MS OFFICE (MS-WORD) **27 Hrs**

1.5 Identifying the MS Word Screen and its menu
1.6 Practice of create a new document, saving and re-opening it fromthe location and spell check & grammar
1.7 Practice of Page Formatting (Borders, Character Spacing, Paragraph,Bullets& Numberings and Fonts)
1.8 Practice of different tool bars like standard, format& drawing tool bars
1.9 Practice of Insert pictures, clipart, and shapes
1.10 Practice of header and footer
1.11 Practice of insert table and also format of table
1.12 Practice of page setup, set the page margins, and printing documents

MS OFFICE (MS-EXCEL) **27 Hrs**

1.13 Identifying the MS EXCEL Screen and its menu

1.14 Practice of create a new sheet, saving and re-opening it from thelocation and spell check

1.15 Practice of insert and delete of row and columns (format of cell)

1.16 Practice of entering data and formulas in worksheet(Add, Subtract, Multiplying, and Divide & Average)

1.17 Repeating practical serial number04

1.18 Practice of insert chart and its types

1.19 Practice of page setup, set the page margins, and printing

MS OFFICE (MS-POWER POINT) **15 Hrs**

1.20 Identifying the MS POWER POINT Screen and its menu
1.21 Practice of create a new presentation and save
1.22 Practice of open saves presentations
1.23 Practice of inset picture and videos

INTERNET & E-MAIL **12 Hrs**

1.24 Identifying internet explorer
1.25 Practice of searching data from any search engine
1.26 Practice of create an E-Mail account and how to send and receivemails, download attachments

Ftw-114 Drawing & Fashion Designing

Total Contact Hours

Theory	64	**T**	**P**	**C**
Practical	192	2	6	4

COURSE CONTENTS

1. Introduction of Drawing, Design and Cutting 12Hrs

1.1 Introduction of drawing
1.2 Drawing Tools
1.3 Application of drawing
1.4 Application of sketching
1.5 Introduction of design
1.6 Design Disciplines
1.7 Methods of designing
1.8 Types of design
1.9 Introduction of cutting
1.10 Types of cutting

2. Fundamentals of Geometry 16Hrs

2.1 Geometrical tools
2.2 Points, Lines, shapes, ray, vertex and Planes
2.3 Measuring Segments
2.4 Measuring Angles
2.5 Angle Pair Relationships
2.6 Distance and Midpoints
2.7 Perimeter, Circumference, and Area

3. Fundamentals of Drawing & Design 8Hrs

3.1 1st exercise of drawing
3.2 2nd exercise of drawing
3.3 3rd exercise of drawing
3.4 4th exercise of drawing
3.5 5th exercise of drawing
3.6 6th exercise of drawing
3.7 7th exercise of drawing
3.8 8th exercise of drawing
3.9 9th exercise of drawing
a. 10^{th} exercise of drawing

b. 11th exercise of drawing
c. 12th exercise of drawing
d. 13th exercise of drawing
e. 14th exercise of drawing
f. 15th exercise of drawing
g. 16th exercise of drawing
h. 17th exercise of drawing
i. 18th exercise of drawing
j. 19th exercise of drawing
k. 20th exercise of drawing

4. Fundamentals of Cutting of Design **8Hrs**

4.1 1st exercise of cutting
4.2 2nd exercise of cutting
4.3 3rd exercise of cutting
4.4 4th exercise of cutting
4.5 5th exercise of cutting
4.6 6th exercise of cutting
4.7 7th exercise of cutting
4.8 8th exercise of cutting
4.9 9th exercise of cutting
4.10 10th exercise of cutting
4.11 11th exercise of cutting
4.12 12th exercise of cutting
4.13 13th exercise of cutting
4.14 14th exercise of cutting
4.15 15th exercise of cutting

3. Fashion **20Hrs**

3.1 Definition of Fashion
3.2 History of fashion
3.3 Types of fashion
3.4 Introduction of fashion designing
3.5 Sketching of human feet
3.6 Sketching of visual things
3.7 Sketching of different pictures
3.8 Free hand sketchingof shoes (Oxford, Derby etc.)
3.9 Geometrical Sketching
3.10 Fashion Designing Casual (Shoe, Boot, Long Boot)

Recommended Books

1. J.A.JLuijten, P.W.JVelden-Design, Pattern Engineering and Grading of Footwear Vol.1&2, TNO Leather & Shoe Research Institute

2. R.G.Miller- Manual of Shoe Making, Clarks Limited

3. www.shoetrades.com/Foot-Introduction to Modern Footwear Technology, (STP) SHOE TRADERAS PUBLI.

4. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York

5. Muazzam Mahmood Mansoor “Principles of Shoe Designing” Technical Education & Vocational Training Authority, Punjab

6. Muazzam Mahmood Mansoor “Practical Work for SDM” Technical Education & Vocational Training Authority, Punjab

7. Muazzam Mahmood Mansoor “Pattern Engineering of Shoe Components” Technical Education & Vocational Training Authority, Punjab

8. Muazzam Mahmood Mansoor “Principles of Upper Leather Cutting & Stitching” Technical Education & Vocational Training Authority, Punjab

Ftw -114 Drawing & Fashion Designing

INSTRUCTIONAL OBJECTIVES:

1. Introduction of Drawing, Design and Cutting

1.1 Introduce and explain about drawing
1.2 Describe the different Drawing Tools
1.3 Apply the Application of drawing
1.4 Apply the Application of sketching
1.5 Explain the Introduction of design
1.6 Explain the Design Disciplines
1.7 Explain the Methods of designing
1.8 Explain the Types of design
1.9 Define the Introduction of cutting
1.10 Explain the Types of cutting

2 Fundamentals of Geometry

2.1 Introduce the Geometrical tools
2.2 Explain the Points, Lines, shapes, ray, vertex and Planes
2.3 Explain the Measuring Segments
2.4 Explain the Measuring Angles
2.5 Explain the Angle Pair Relationships
2.6 Define the Distance and Midpoints
2.7 Explain the Perimeter, Circumference, and Area

3. Fundamentals of Drawing & Design

3.1. Train the students in line work and drawing
3.2. Explain the importance of line work

3.3. To set the hand of the students on line work
3.4. To make practice on the drawing exercises

9. Fundamentals of Cutting of Design

4.1. Train the students in line work and cutting
4.2. Explain the importance of hand cutting
4.3. To set the hand of the students in cutting on line work
4.4. To make practice on the cutting exercises

10. Fashion

10.1 Describe the Definition of Fashion
10.2 Explain the History of fashion
10.3 Explain the Types of fashion
10.4 Introduce of fashion designing
10.5 Explain the Sketching of human feet
10.6 Sketching of visual things
10.7 Sketching of different pictures
10.8 Make Free hand Sketching (Oxford, Derby etc.)
10.9 Make Geometrical Sketching
10.10 Make Fashion Designing Casual (Shoe, Boot, Long Boot)

Ftw -114 Drawing & Fashion Designing

List of Practical:

1) Drawing Exercises 1 to 20

- To draw different styles of line work in drawing sheets for the drawing exercises.
- To produce the accurate line work on the drawing sheets for better designing and drawing.

2) Cutting Exercises 1 to 20

- To cut the drawing sheets with cutting knife (with hand) after drawing the different lines including straight and curved.

3) Creative sketching of different pictures

- To sketch only for drawing the 20 pictures of different shapes for improving the drawing and designing.

4) Creative sketching of different Shoes and Boots

- To sketch only for drawing the 10 different styles of shoes of diverse articles and types for better line work and designing.

- To sketch only for drawing the 10 different styles of Boots of diverse articles and types for better line work and designing.

5) Creative sketching with geometrical Tools

- To sketch only for drawing the 20 different styles of drawing articles by using geometrical tools.
- To sketch only for drawing the 20 different styles of pictures and shapes by using geometrical tools.

6) Sketching of running fashion shoes

- To sketch only for drawing 10 different styles of shoes of running fashion.

Ftw-124 Design &Pattern Engineering -I

	Total Contact Hours			
Theory	64	**T**	**P**	**C**
Practical	192	2	6	4

Course Contents

1. Fundamentals of Shoe Designing **12Hrs**

1.1 Introduction of a shoe and boot
1.2 Parts of a Shoe
1.3 Basis of design
1.4 Markets and design
1.5 From design to production
1.6 The pattern cutter's role
1.7 Tools and equipment
1.8 Basic footwear styles
1.9 Safety when working with knives
1.10 Tips & Techniques
1.11 Basic shoe standard and size increment

2. Shoe Designing and Pattern **12Hrs**

2.1 Methods of cutting Forms
2.2 The construction of standards
2.3 Activity designer and pattern cutter
2.4 Pattern production
2.5 Safety when working with knives
2.6 Tips & Techniques
2.7 Basic shoe standard and size increment

3. Form Cutting and Last **12Hrs**

3.1 Fundamental parts of a Last
3.2 Fish bone method (Paper slotted forms)
3.3 Taped forms
3.4 Vacuum forms
3.5 Fabric forms
3.6 CAD method
3.7 Last surface area (Manual)

4. Modelling of Intermediate Components **12Hrs**

4.1 Last Bottom Pattern
4.2 Foot prints and drawing
4.3 Relation Between Foot length and insole length
4.4 Insole Pattern Design from Foot print
4.5 Insole Pattern Design from Blue print
4.6 Insole Pattern Design following Dr. Schede Method

5. Sock Lining **8Hrs**

5.1 1/1 Whole (full) Sock lining
5.2 ¾ sock lining till joint girth
5.3 ¼ heel sock lining
5.4 pre molded sock lining
5.5 design of stiffener & toe puff

6. Diagram of last making **4Hrs**

6.1 Diagram of last making
6.2 Types of last
6.3 Types of last
6.4 Types of last construction
6.5 Cad last diagram

7. Main Footwear Construction **4Hrs**

7.1 Upper Method
7.2 Bottoming Method
7.3 Lasting Method

Recommended Books

1. J.A.JLuijten, P.W.JVelden- Design, Pattern Engineering and Grading of Footwear Vol.1 & 2, TNO Leather & Shoe Research Institute
2. R.G.Miller- Manual of Shoe Making, Clarks Limited
3. J.A.JLuijten, P.W.JVelden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
4. Dick Anzeic- Practical Pattern Making, (STP) SHOE TRADERAS PUBLI.
5. J.S Harding "The Boot and Shoe Industry" SIR ISAAC PITMAN & SONS LTD, New York
6. Muazzam Mahmood Mansoor "Principles of Shoe Designing" Technical Education & Vocational Training Authority, Punjab
7. Muazzam Mahmood Mansoor "Practical Work for SDM" Technical Education & Vocational Training Authority, Punjab
8. Muazzam Mahmood Mansoor "Pattern Engineering of Shoe Components" Technical Education & Vocational Training Authority, Punjab
9. Muazzam Mahmood Mansoor "Principles of Upper Leather Cutting & Stitching" Technical Education & Vocational Training Authority, Punjab

Ftw-124 Design & Pattern Engineering -I

INSTRUCTIONAL OBJECTIVES:

1. Fundamentals of Shoe Designing

1.1 Introduce of a shoe and boot
1.2 Explain the Parts of a Shoe
1.3 Explain Basis of design
1.4 Explain Markets and design

1.5 Explain From design to production
1.6 Explain The pattern cutter's role
1.7 Explain Tools and equipment
1.8 Explain Basic footwear styles
1.9 Explain Safety when working with knives
1.10 Explain Tips & Techniques
1.11 Explain Basic shoe standard and size increment

2. Shoe Designing and Pattern

2.8 Explain Methods of cutting Forms
2.9 Explain The construction of standards
2.10 Explain Activity designer and pattern cutter
2.11 Explain Pattern production
2.12 Explain Safety when working with knives
2.13 Explain Tips & Techniques
2.14 Explain Basic shoe standard and size increment

3. Form Cutting and Last

3.1 Explain Fundamental parts of a Last
3.2 Explain and make Fish bone method (Paper slotted forms)
3.3 Explainand makeTaped forms
3.4 Explainand makeVacuum forms
3.5 Explain and make Fabric forms
3.6 Explainand makeCAD method
3.7 Explain Last surface area (Manual)

4. Modelling of Intermediate Components

4.1 Explain Last Bottom Pattern
4.2 Explain Foot prints and drawing
4.3 Explain Relation Between Foot length and insole length
4.4 Explain Insole Pattern Design from Foot print
4.5 Explain Insole Pattern Design from Blue print
4.6 Explain Insole Pattern Design following Dr. Schede Method

5. Sock Lining

5.1 Explain 1/1 Whole (full) Sock lining
5.2 Explain ¾ sock lining till joint girth
5.3 Explain ¼ heel sock lining
5.4 Explain pre molded sock lining
5.5 Explain design of stiffener & toe puff

6. Diagram of last making

6.1 Explain Diagram of last making
6.2 Explain Types of last
6.3 Explain Types of last
6.4 Explain Types of last construction
6.5 Explain Cad last diagram

7. Main Footwear Construction

7.1 Explain Upper Method

7.2 Explain Bottoming Method

7.3 Explain Lasting Method

Ftw-124 Design & Pattern Engineering -I

List of Practical:

1. Parts of Shoe and boot
    - To introduce the different styles of shoes and boots like upper parts and bottom parts.
2. Tape method
    - To paste the masking tape on the last
    - To draw a sketch on the masking tape
    - To prepare inside and outside of the design and paste on drawing paper
    - To prepare a mean form by using the tape method on last
    - To make a standard design on the mean form
3. Paper method
    - To Set the paper on the last
    - To draw a sketch on the paper
    - To prepare inside and outside of the design and paste on drawing paper
    - To prepare a mean form by using the Paper method on last
    - To make a standard design on the mean form
4. Vacuum method
    - To set the last in vacuum machine
    - To make a shape of last by using vacuum machine
    - To prepare inside and outside of the design and paste on drawing paper
    - To prepare a mean form by using the Vacuum method on last
    - To make a standard design on the mean form
5. Fabric method
    - To set the cloth on the last
    - To prepare inside and outside of the design and paste on drawing paper
    - To prepare a mean form by using the Fabric method on last
    - To make a standard design on the mean form
6. CAD method

- To make a design on CAD/CAM software

7. Last Manufacturing (Manual & Machine)
   - To make a sketch of last
   - To make a profile of top, bottom, front, outside and inside
   - To make a proto type with wooden last
   - To make a model of silver
   - To make plastic, wooden, V-cut etc last

Ftw-133 Footwear Production Technology -I

Total Contact Hours

Theory	32	**T**	**P**	**C**
Practical	192	1	6	3

Course Contents

1. Principles of Upper Cutting **2Hrs**

Introduction and general insight in to division of upper surface, according to a system.

1.1 What is Cutting
1.2 Types of cutting
1.3 Cutting to a system
1.4 Cutting Materials in Footwear
1.5 Characteristics and Variation in Leather and Synthetic
1.6 Methods of Cutting

2. What is cutting and cutting to system **2Hrs**

2.1 Always start from a corner
2.2 Start from big sizes
2.3 Start from big pattern
2.4 Straight edge with straight edge
2.5 Place a curve with curve
2.6 Edge must touch but do not over lap
2.7 Use best interlocking
2.8 All pattern should be cut tightly to the toe
2.9 Best pattern from best part

3. Faults and defects in leather **4Hrs**

3.1 Before Slaughtering
- 3.1.1 Scratches
- 3.1.2 Blemishes
- 3.1.3 Scar marks
- 3.1.4 Growth marks
- 3.1.5 Vain marks

3.1.6 Identification marks
3.1.7 Caesarean marks
3.1.8 Warble fly marks
3.1.9 Polk marks
3.1.10 Dung patches

3.2 After slaughtering
3.2.1 Butcher‘s cut
3.2.2 Improper salting
3.2.3 Lime blast
3.2.4 Toggling marks
3.2.5 Brand marks
3.2.6 Chemical marks
3.2.7 Discolor

4. Knowledge of Clicking Press (Cutting) 3 Hrs

4.1 Due to power supply
4.1.1 Hydraulic press
4.1.2 Pneumatic press
4.1.3 Electric press

4.2 Due to its working

4.2.1 Swing beam clicking press

4.2.2 Travel head clicking press

4.3 Parts of clicking press
4.3.1 Micro clicking button
4.3.2 Cutting paid (hard plastic poly propylene)
4.3.3 Wooden paid
4.3.4 Aluminum striking board
4.3.5 Leather welt

4.4 Adjustment
4.4.1 Beam height adjustment
4.4.2 Stroke adjustment

4.5 Precaution

4.5.2 Press condition

4.5.2 Work ticket

4.5.2 Cutting knife pair wise

4.5.2 Not a lose dress

4.5.2 Click the button both hand

4.5.2 Use of cutting board

5. Obligations of cutting man 4Hrs

5.1 Definition of cutter
5.2 Literate
5.3 How know of quality of material

5.4 Can count
5.5 6x6 eye sight
5.6 Intelligent

6. Duties of a Cutter **4Hrs**

6.1 Receiving of work ticket

6.2 Basic allowance

6.3 Inspection of material received

6.4 Pair wise cutting

6.5 Size marking

6.6 Record of work done

7. Demands and requirements in the shoe factories **2Hrs**

8. Quality control before and after cutting **3Hrs**

8.1 Leather an expensive material

8.2 Big cost on cost of shoe

8.3 Best piece from best part

8.4 Leather cutting first process

9. Rules of economy (costing of the material consumed) **5Hrs**

9.1 Material checking
9.2 Cutting knife checking
9.3 Every machine should be working condition
9.4 Well trained labor
9.5 Cutting with system
9.6 Always plan ahead
9.7 Large size from large and sting leather side
9.8 Small size from small and defected skin
9.9 Cut material placement

10. Upper Leather Cutting (Practical) **3 Hrs**

10.1 Making of the exercising as per drawing, cutting and achieve targets
10.2 Drawing paper cutting
10.3 Skin printing cutting
10.4 Real Leather Hand Cutting
10.5 Real Leather Press Cutting
10.6 Skiving
10.7 Splitting
10.8 Edge Coloring
10.9 Assembling of components

Recommended Books

1. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
2. H.J.PATRIC, F.B.S.I - Footwear Technology Dictionary, (STP) SHOE TRADERAS PUBLI
3. R.G.Miller- Manual of Shoe Making, Clarks Limited
4. J.A.JLuijten, P.W.JVelden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
5. J.A.JLuijten, P.W.JVelden- Course Cutting Upper Leather, TNO Leather & Shoe Research Institute
6. Dick Anzeic- Practical Pattern Making, (STP) SHOE TRADERAS PUBLI.
7. J.S Harding "The Boot and Shoe Industry" SIR ISAAC PITMAN & SONS LTD, New York
8. Muazzam Mahmood Mansoor "Principles of Upper Leather Cutting & Stitching" Technical Education & Vocational Training Authority, Punjab

Ftw-133 Footwear Production Technology -I

INSTRUCTIONAL OBJECTIVES:

1. Principles of Upper Leather Cutting

1.1 Define What is Cutting
1.2 Explain the Types of cutting
1.3 Explain the Cutting to a system
1.4 Explain the Cutting Materials in Footwear
1.5 Explain the Characteristics and Variation in Leather and Synthetic

1.6 Explain the Methods of Cutting

2. What is cutting and cutting to system

2.1 Explain the Method of different styles of cutting
2.2 Explain the Pattern vice and size vice cutting
2.3 Explain the Curve line cutting
2.4 Define interlocking, its basic place and method
2.5 Explain the Tight to toe cutting
2.6 Provide Knowledge of best parts and best pattern cutting

3. Faults and Defects in Leather

3.1 Explain the Creation of Faults and Defects in Leather
3.2 How Damage and animal skin with rough scratches
3.3 What are blemishes, scars, marks, growth marks, vain marks and their effects
3.4 Explain what are identifications of marks, Caesarean marks, Warble fly marks, Polk marks, Dung patches and their effects?
3.5 What is slaughtering?
3.6 To take out a skin from the animal
3.7 Explain the Carelessness of butcher
3.8 Explain the tanning process, improper salting lime blast, chemical marks
3.9 During tanning and after tanning the faults

4. Knowledge of Clicking Press

4.1 Define clicking press
4.2 Different kinds of cutting press, Hydraulic Press, Pneumatic Press, Electric Press
4.3 Basics of Cutting presses
4.4 In working process, Types of Presses are swing beam and travel head clicking press, Micro clicking button, Pressure adjustment push button, On off button, Cutting paid (hard plastic poly propylene), Wooden paid, Aluminum striking board, Leather welt
4.5 Knowledge about adjustment, beam height and stroke adjustment
4.6 To care for clicking press
4.7 How to work on clicking press
4.8 Use of different parts of cutting presses
4.9 Who is a cutter man, his intelligence and intellectuals
4.10 Duties of a cutter man according to his work

5. Demands and requirements in the shoe factories

5.1 Knowing about factories, their demands and requirements

6. Quality control before and after cutting

6.1 How to check the quality

6.2 Find the cost of shoes and check the quality

6.3 Process of leather cutting

7. Rules of economy (Costing of the material consumed)

7.1 Define economy

7.2 Find costing, its material and cutting knife checking

7.3 To check the machines and its working

7.4 Knowing about the experience of labor

7.5 Check the plan first

7.6 To control the wastage of leather for better economy

7.7 Arrange the place where waste the material

8. Upper leather cutting (Practical)

8.1 Define upper leather cutting

8.2 Cutting and drawing exercises with rules

8.3 Hand cutting with formulation

8.4 Rules of skiving, splitting and coloring

8.5 How to assemble the cutting components

Ftw-133 Footwear Production Technology -I

List of Practical:

1. To Make the exercises as per drawing, cutting and achieve targets
2. To cut the paper of Skin printing for hand cutting
3. To cut the Real Leather for Hand Cutting practice
4. To cut the Drawing paper for cutting exercises
5. To cut the synthetic material with cutting knife for hand Cutting Exercises (05 different exercises)
6. To cut the leather material with cutting knife for Cutting Exercises (05 different exercises)
7. To cut the parachute cloth material with cutting knife for Cutting Exercises (05 different exercises)
8. To cut the Rubber material with cutting knife for Cutting Exercises (05 different exercises)
9. To operate the cutting machine manually for Exercises in Press Cutting
10. To operate the cutting machine manually for Clicking Press Cutting
11. To operate the cutting machine manually for Hydraulic Press Cutting
12. To operate the cutting machine manually for Pneumatic Press Cutting
13. To operate the cutting machine manually for Electric Press Cutting
14. To operate the cutting machine manually for Swing beam Clicking Press cutting
15. To operate the cutting machine manually for Travel Head Clicking Press cutting
16. To cut the leather on press Cutting for Real Leather Press Cutting
17. To skive the leather material on Skiving machine
18. To split the leather material on Splitting machine

اسلامیات/مطالعہ پاکستان

نصاب (سال دوم)

حصہ اول	اسلامیات	Gen 211	ٹی	پی	سی
			1	0	1

حصہ دوم مطالعہ پاکستان

کل وقت: 20 گھنٹے

موضوعات

1۔ سورہ المومنون ایک تا گیارہ آیات معہ ترجمہ

2۔ دس منتخب احادیث معہ ترجمہ و تشریح

- خیر کم من تعلم القران و علمه
- لاایمان لمن لا امانة له و لادین لمن عهدله
- ایاکم و الظن ان الظن اکذب الحدیث
- من احدث فی امرنا هذا ما لیس منه فهورد
- من حمل علینا السلاح فلیس منا
- اناو کا فل الیتیم فی الجنة هکذا
- لا یومن احد کم حتی اکون احب الیه من والده و ولده و الناس اجمعین
- من بنی لله مسجد ابنی الله له بیتا فی الجنة
- لاضرر ولا ضرار فی الاسلام
- کلکم راع و کلکم مسئول عن رعیته

3۔ سیرت طیبہ

- مکی زندگی، ولادت، بعثت، ہجرت

مدنی زندگی، مواخات، میثاق مدینہ، فتح مکہ (اسباب و نتائج)

خطبہ حجۃ الوداع

4۔ حضور ﷺ بحیثیت:

معلم کامل۔ سربراہ خاندان

5۔ اسلامی معاشرہ

نظام تعلیم اور اس کے مقاصد۔ عدل و انصاف۔ امر بالمعروف و نہی عن المنکر

جہاد، کسب حلال، مسجد (اہمیت و فضیلت)

6۔ اسلامی ریاست۔ ریاست کی تعریف۔ اسلامی ریاست کی خصوصیات۔ اسلامی حکومت کے فرائض۔ اسلامی طرز حکومت۔

سال دوم　　اسلامیات

تدریسی مقاصد

قرآن مجید　　منتخب آیات قرآنی

عمومی مقصد۔ طالب علم پہچان سکے کہ آیات قرآنی کی روشنی میں مومن کے اوصاف کیا ہیں۔

خصوصی مقاصد

- قرآنی آیات کا ترجمہ بیان کر سکے۔
- قرآنی آیات کی تشریح کر سکے۔
- قرآنی آیات کی روشنی میں ایک مومن کے اوصاف بیان کر سکے۔
- قرآنی آیات میں بیان کردہ مومن کے اوصاف اپنے اندر پیدا کر سکے۔

- احادیث نبویہ

عمومی مقصد۔ احادیث کی روشنی میں اسلام کی اخلاقی اقدار (انفرادی و اجتماعی) سے آگاہ ہو سکے۔

خصوصی مقاصد

- احادیث کا ترجمہ بیان کر سکے
- احادیث کی تشریح کر سکے
- احادیث کی روشنی میں اسلام کی اخلاقی اقدار کی وضاحت کر سکے۔
- ان احادیث میں دی گئی تعلیمات کے مطابق اپنی زندگی گزار سکے۔

سیرت طیبہ

عمومی مقصد۔ حضور ﷺ کی سیرت طیبہ کے بارے میں جان سکے۔

خصوصی مقاصد

- حضور ﷺ کی ابتدائی زندگی اختصار کے ساتھ بیان کر سکے۔
- حضور ﷺ کی ہجرت کا واقعہ بیان کر سکے۔
- حضور ﷺ کی مدنی زندگی اختصار سے بیان کر سکے۔
- حضور ﷺ کی بطور معلم خصوصیات بیان کر سکے۔
- حضور ﷺ کی بطور سربراہ خاندان خصوصیات بیان کر سکے۔

اسلامی معاشرہ

عمومی مقصد اسلامی معاشرہ کی خصوصیات سے آگاہی حاصل کر سکے۔

خصوصی مقاصد

- اسلامی معاشرہ کا معنی و مفہوم بیان کر سکے۔
- اسلامی معاشرہ کی امتیازی خصوصیات بیان کر سکے۔
- اسلامی معاشرہ میں عدل و احسان کی اہمیت بیان کر سکے۔

نصاب اخلاقیات (غیر مسلم طلباء کیلئے)

سی	پی	ٹی
1	0	1

سال دوم

کل وقت 20 گھنٹے

موضوعات

معاشرتی اقدار (بلحاظ ہمسایہ، اقوام، قومی سطح، شہری سطح، صنعتی اداروں کی سطح، ضروریات، ورثہ

- حقوق و فرائض
- قوت برداشت
- قوت ارادی
- لگن و جذبہ
- وسیع النظری
- بے غرضی
- انسان دوستی
- حفاظتی شعور
- پاس آزاری
- کامل آگاہی
- تغیرات کو قبول کرنا
- خود شناسی

نصاب مطالعہ پاکستان

ٹی	پی	سی
1	0	1

سال دوم

کل وقت 12 گھنٹے

حصہ دوم

موضوعات

- دوقومی نظریہ
- تحریک پاکستان
- انڈین کانگرس
- مسلم لیگ
- تقسیم بنگال
- میثاق لکھنو
- تحریک خلافت
- سندھی تحریک
- تجاویز دھلی
- نہرو رپورٹ
- قائداعظم کے چودہ نکات
- خطبہ الہ آباد
- انتخابات 1938 اور انتقال اقتدار
- قرارداد پاکستان

حصہ دوم

مطالعہ پاکستان

تدریسی مقاصد

تحریک پاکستان

عمومی مقصد قیام پاکستان کے اسباب و محرکات کو بیان کر سکے۔

خصوصی مقاصد

- قومیت کے مفہوم کو بیان کر سکے۔
- دوقومی نظریہ کی تعریف و توضیح کر سکے۔
- دوقومی نظریہ کی اہمیت بیان کر سکے۔
- ہندوستانی مسلمانوں کی محرومیوں کو بیان کر سکے۔
- قومی تشخص کو بحال رکھنے کے لئے مسلمانان ہند کی مساعی بیان کر سکے۔
- آزادی ہند اور قیام پاکستان کے لیے علامہ اقبال اور قائداعظم کی مساعی بیان کر سکے۔
- قیام پاکستان سے مستقبل میں اسلامی مملکت کے قیام کے لئے مسلم عوام کی کوششوں کو بیان کر سکے۔
- مسلم لیگ کی قیام پاکستان کے لیے جدوجہد بیان کر سکے۔

Phy-212 APPLIED MECHANICS/APPLIED MECHANICS

Total Contact Hours		T	P	C
Theory	32 Hours	1	3	2
Practical	96 Hours			

AIMS
1. Apply the concepts of Applied Physics to understand Mechanics
2. Apply laws and principles of Mechanics in solving technological problems
3. Use the knowledge of App. Mechanics in learning advance technical courses.
4. Demonstrate efficient skill of practical work in Mechanics Lab.

COURSE CONTENTS

1. MEASUREMENTS **2 Hours**
- 1.1 Review: Dimensional formula of Equations of Motion
- 1.2 Review: Systems of measurement, S.I. Units, conversion
- 1.3 Significant Figures
- 1.4 Degree of accuracy

2. EQUILIBRIUM OF CON-CURRENT FORCES **4 Hours**
- 2.1 Concurrent forces
- 2.2 Addition and Resolution of Vectors
- 2.3 Toggle Joint, Hanging Chains
- 2.4 Roof Trusses, Cranes.
- 2.5 Framed structures

3. MOMENTS AND COUPLES: **3 Hours**
- 3.1 Principle of Moments - Review
- 3.2 Levers
- 3.3 Safety valve
- 3.4 Steel yard
- 3.5 Parallel forces, couple
- 3.6 Torque

4. EQUILIBRIUM OF NON CONCURRENT FORCES: **4 Hours**
- 4.1 Non-concurrent forces
- 4.2 Free body diagram
- 4.3 Varignon's theorem
- 4.4 Conditions of total Equilibrium (Review)
- 4.5 Ladders

5. MOMENT OF INERTIA: **4 Hours**
- 5.1 Review: Rotational Inertia
- 5.2 Moment of Inertia, Theorems
- 5.3 Moment of Inertia of symmetrical bodies
- 5.4 M.I. of Fly wheel with applications
- 5.5 Energy stored by Fly wheel

6. FRICTION: **4 Hours**

6.1 Review: Laws of friction
6.2 Motion of body along an inclined plane (up & down)
6.3 Rolling friction & Ball Bearings
6.4 Fluid Friction, Stokes' Law

7. WORK, ENERGY AND POWER **3 Hours**

7.1 Work-Energy relationship
7.2 Work done by variable .
7.3 Power
7.4 I.H.P, B.H.P and Efficiency
7.5 Dynamometer.

8. **TRANSMISSION OF POWER**

8.1 Belts, Ropes
8.2 Chains
8.3 Gears
8.4 Clutches, functionsand types with application.

9. MACHINES: **3 Hours**

9.1 Efficiency of machines
9.2 Inclined plane - Review
9.3 Reversibility of machines
9.4 Single purchase crab
9.5 Double purchase crab.
9.6 Worm and worm wheel.
9.7 Differential Screw Jack.
9.8 Differential Pulley, Wheel and Axle

10. VIBRATORY MOTION: **2 Hours**

10.1 S.H.M. - Review
10.2 Pendulums
10.3 Speed Governors
10.4 Helical spring
10.5 Cams
10.6 Quick return motion

11. ELASTICITY: **3 Hours**

11.1 Three Moduli of Elasticity
11.2 Loaded Beams, Types of Beam & Loads
11.3 Bending Stress
11.4 S.F & B.M diagram
11.5 Torsion and Torsional Stresses

12. Simple Mechanism

12.1 Introduction

12.2 Kinematic link or element

12.3 Kinematic pair and types

12.4 Kinematic chains and types

13. Velocity in mechanism

13.1 Introduction

13.2 Instantaneous center

13.3 Instantaneous velocity

13.4 Velocity of a link by Instantaneous center method

13.5 Relative velocity of two bodies in straight line

13.6 Velocity of a link by relative velocity method

Phy. 212 APPLIED MECHANICS/APPLIED MECHANICS

INSTRUCTIONAL OBJECTIVES

1. USE THE CONCEPTS OF MEASUREMENT IN PRACTICAL SITUATIONS/PROBLEMS

1.1 Explain Dimensional formula
1.2 Explain systems of measurement
1.3 Use concept of significant figures and degree of accuracy to solve problems

2. USE THE CONCEPT OF ADDITION AND RESOLUTION OF VECTORS TO PROBLEMS ON EQUILIBRIUM INVOLVING CONCURRENT FORCES

2.1 Describe concurrent forces
2.2 Explain resolution of vectors
2.3 Use the analytical method of addition of vectors for solving problems.
2.4 Use the graphical method of addition of vectors for solving problems.
2.5 Solve problems on forces with emphasis on roof trusses, cranes simple frames and framed structures.

3. USE THE PRINCIPLE OF MOMENTS AND CONCEPT OF COUPLE TO SOLVE PROBLEMS.

3.1 Describe the principle of moments.
3.2 Use the principle of moments to solve problems on compound levers, safety valve, and steel-yard.
3.3 Describe couple and torque.
3.4 Use the concept to solve problems on torque.

4. USE THE LAWS OF TOTAL EQUILIBRIUM OF FORCES TO SOLVE PROBLEMS INVOLVING FORCES IN EQUILIBRIUM.

4.1 Distinguish between concurrent and non-concurrent forces.
4.2 Prepare a free body diagram of an object or a structure.
4.3 Explain Varignon's theorem
4.4 Explain second condition of equilibrium
4.5 Use laws of total equilibrium to solve problems on forces involving framed structure and ladders.

5. USE CONCEPTS OF MOMENT OF INERTIA TO PRACTICAL SITUATIONS AND PROBLEMS.

5.1 Explain moment of inertia.
5.2 Explain the theorems of Parallel and perpendicular Axis.
5.3 Describe the M.I. of regular bodies
5.4 Explain M.I. of Fly wheel
5.5 Explain Energy stored by Fly Wheel
5.6 Use these concepts to solve simple problems.

6. UNDERSTAND THE CONCEPTS AND LAWS OF SOLID AND FLUID FRICTION.

6.1 Define Coefficient of friction between a body placed on an inclined plane and the surface.
6.2 Explain motion of a body placed on an inclined plane

6.3 Calculate the force needed to move a body up and down an inclined plane.
6.4 Explain rolling friction and use of ball bearings.
6.5 Describe fluid friction and Stoke's law.

7. UNDERSTAND WORK, ENERGY AND POWER.

7.1 Derive work-energy relationship
7.2 Use formulae for work done by a variable force to solve problems.
7.3 Explain Power, I.H.P, B.H.P and efficiency.
7.4 Describe dynamometers.
7.5 Use the concepts to solve problems on power and work-energy

8. Understand transmission of power through ropes and belts

8.1 Describe the need for transmission of power

8.2 Describe the method of transmission of power

8.3Understand transmission of power through ropes and belts

8.4 Write formula for power transmitted through ropes and belts

8.5 Describe transmission of power through friction gears and write formula

8.6 Describe transmission of power through chains and toothed wheels/gears

8.7 Use the formula to solve/problem on transmission of power

8.8 Describe types and functions of clutches with applications

9. USE THE CONCEPTS OF MACHINES TO PRACTICAL SITUATIONS.

9.1 Explain theoretical, actual mechanical advantage and efficiency of simple machines.

9.2 Use the concept to calculate efficiency of an inclined plane.

9.3 Describe reversibility of machines.

9.4 Calculate the efficiency of:

i. Single purchase crab.

ii. Double purchase crab.

iii. Worm and worm wheel.

iv. Differential screw jack, Diff. Pulley, Wheel and Axle.

9.5 Use the formulae to solve the problems involving efficiency, M.A of the above machines.

10. USE THE CONCEPTS OF VIBRATORY MOTION TO PRACTICAL SITUATIONS.

10.1 Define vibratory motion giving examples.

10.2 Describe circular motion and its projection on diameter of the circular path.

10.3 Relate rotatory motion to simple vibratory motion.

10.4 State examples of conversion of rotatory motion to vibratory motion and vice versa.

10.5 Derive formulae for position, velocity and acceleration of a body executing S.H.M.

10.6 Use the concept of S.H.M to helical springs.

10.7 Use the concept S.H.M to solve problems on pendulum.

11. UNDERSTAND BENDING MOMENTS AND SHEARING FORCES.

11.1 Define three types of stresses and moduli of elasticity.

11.2 Describe types of beams and loads.

11.3 Explain shearing force and bending moment.

11.4 Use these concepts to calculate S.F and B.M in a given practical situation for point loads, uniformly distributed loads.

11.5 Prepare S.F and B.M diagram for loaded cantilever and simply supported beams.

11.6 Describe torsion and torsional stresses giving formula

12. Understand Simple Mechanism

12.1 Define simple mechanism

12.2 Define kinematics

12.3 Explain kinematic links or elements

12.4 Explain kinematic chains

12.5 Distinguish between types of kinematic chains

13. Understand the method of finding velocity in mechanisms

13.1 Explain relative velocity

13.2 Explain instantaneous center

13.3 Explain instantaneous velocity

13.4 Explain the method of finding velocity of a link by:

i. Relative velocity method

ii. Instantaneous center method

Phy-212 APPLIED MECHANICS//APPLIED MECHANICS

LIST OF EXPERIMENTS

1. Find the weight of the given body using Law is theorem.
2. Find unknown forces in a given set of concurrent forces in equilibrium using Grave-sands apparatus
3. Set a jib crane and analyze forces in its members
4. Set a Derrick Crane and analyze forces in its members
5. Study forces shared by each member of a Toggle Joint
6. Set a Roof Truss and find forces in its members
7. Verify Principle of Moments in a compound lever
8. Calibrate a steelyard
9. Find the Reactions at the ends of a loaded beam
10. Use reaction of beams apparatus to study resultant of parallel forces
10. Find the Moment of Inertia of a Flywheel
11. Find the angle of reaction for a wooden block placed on an inclined plane
12. Find the B.H.P. of a motor
13. Find M.A. and Efficiency of worm and worm wheel
14. Study the transmission of power through friction gears
15. Study the transmission of power through belts
16. Study the transmission of power through toothed wheels
17. Study the function of clutches
18. Find M.A. and efficiency of differential wheel and axle
19. Find the efficiency of a screw
20. Find the efficiency of a differential pulley
21. Verify Hooke's Law using Helical Spring
22. Study conversion of rotatory motion to S.H.M using S.H.M Model/apparatus
23. Study conversion of rotatory motion to vibratory motion of piston in a cylinder
24. Study the reciprocating motion
25. Study the working of cams

26. Study the quick return motion

27. Compare the Elastic constants of the given wires

28. Verify Hooke's Law using Helical Spring

29. Find the coefficient of Rigidity of a wire using Maxewell's needle

30. Find the coefficient of rigidity of a round bar using torsion apparatus

31. Find the coefficient of Rigidity of a rectangular bar using Deflection of Beam Apparatus

32. Determine S.F. and B.M. in a loaded canti-lever (Point Loads)

33. Determine S.F. and B.M. in a simply supported Beam (Point Loads)

34. Determine S.F. and B.M. in a simply supported Beam (Point loads and uniformly distributed load)

35. Determine S.F. and B.M. in a simply supported Beam (Point loads and uniformly distributed)

36. Study working and function of link mechanism of different types

BOOKS RECOMMENDED:

1. Applied Mechanics by R.S. Khurmi
2. Applied Mechanics by A.P.S Sahihney&Prakash D. Manikpyny.
3. Applied Mechanics by Inchley and Morley
4. Theories of Machines by R.S. Khurmi and J.K. Gupta.
5. Applied Mechanics by Junarker.
6. Engineering Science Vol-I by Brown and Bryant
7. Practical Physics by MehboobIlahi Malik &Ikram-ul-Haq
8. Experimental Physics Note Book by M. Aslam Khan & M. AkramSandhu
9. Experimental Mechanics (Urdu Process) by M. AkramSandhu

MATH-212 **Applied Mathematics-II**

	T	P	C
Total Contact Hours:			
	2	0	2

Theory: 64 Hours.

Aims & Objectives:

After completing the course the students will be able to:Solve the problems of calculus and analytical Geometry.

COURSE CONTENTS:

1. FUNCTIONS & LIMITS. 4 **Hours**

1.1 Constants and variables
1.2 Functions & their types
1.3 The concept of limit
1.4 Limit of a function
1.5 Fundamental theorems on limit
1.6 Some important limits
1.7 Problems

2. DIFFERENTIATION. **4 Hours**

2.1 Increments
2.2 Different Coefficient or Derivative
2.3 Differentiation ab-initio or by first principle
2.4 Geometrical Interpretation of Differential Coefficient
2.5 Differential Coefficient of Xa, (ax + b)a
2.6 Three important rules
2.7 Problems.

3. DIFFERENTIATION OF ALGEBRIC FUNCTION.

4 Hours

3.1 Explicit function
3.2 Implicit function
3.3 Parametric forms
3.4 Problems

4. DIFFERENTATION OF TRIGNOMETRIC FUNCTION.

4 Hours

4.1 Differentional coefficient of sin x ,cos x ,tang x from first principle.
4.2 Differentional coefficient of Cosec x, Sec x, Cot x.
4.3 Differentiation of inverse trigonometric function.
4.4 Problems.

5. DIFFERENTIATION OF LOGARITHIMIC & EXPONENTIAL FUNCTION. 4 Hours

5.1 Differentiation of In x
5.2 Differentiation of log ax

5.3 Differentiation of ax
5.4 Differentiation of ex
5.5 Problems.

6. RATE OF CHANGE OF VARIABLE. 4 Hours

6.1 Increasing and decreasing function
6.2 Maxima and Minima values
6.3 Criteria for maximum and minimum values.
6.4 Method of finding maxima and minima.
6.5 Problems.

7. INTEGRATION. 8 Hours

7.1 Concept
7.2 Fundamental Formulas
7.3 Important Rules
7.4 Problems.

8. METHOD FOR INTEGRATION. 6 Hours

8.1 Integration by substitution
8.2 Integration by parts
8.3 Problems.

9. DEFINITE INTEGRALS. 6 Hours

9.1 Properties
9.2 Application to Area
9.3 Problems

10. PLANE ANALYTIC GEOMETRY & STRAIGHT LINE. 6 Hours

10.1 Coordinate System
10.2 Distance Formula
10.3 The Ratio Formulas
10.4 Inclination and slope of a line
10.5 The Slope Formula
10.6 Problems.

11. EQUATION OF STRAIGHT LINE. 6 Hours

11.1 Some Important Forms
11.2 General form
11.3 Angle formula
11.4 Parallelism and perpendicularity
11.5 Problems

12. THE EQUATION OF THE CIRCLE. 8 Hours

12.1 Standard form of equation
12.2 Central form of equation
12.3 General form of equation
12.4 Radius & coordinate of the Centre
12.5 Problems

MATH -212 APPLIED MATHEMATICS –II

INSTRUCTIONAL OBJECTIVES

1. USE THE CONCEPT OF FUNCTION AND THEIR LIMITS IN SOLVING SIMPLE PROBLEMS

1.1 Define a function
1.2 List all types of function
1.3 Explain the concept of limit and limit of a function
1.4 Explain fundamental theorem on limits
1.5 Derive some important limits
1.6 Solve simple problems on limits

2. UNDERSTAND THE CONCEPT OF DIFFERENTIAL COEFFICIENT

2.1 Derive mathematics expression for a differential coefficient.
2.2 Explain geometrical interpretation of different ional coefficient.
2.3 Differentiate a content, constant associated with a variable and the sum of finite number of function.
2.4 Solved related problems.

3. USE RULES OF DIFFERENTIAL TO SOLVE PROBLEMS OF ALGEBRIC FUNCTIONS.

3.1 Differentiate ab-initio Xn and (ax+b)n
3.2 Derive product, quotient and chain rules.
3.3 Find derivative of implicit function & explicit function.
3.4 Differentiate parametric forms; function w.r.t another function and by rationalization.
3.5 Solve problems using these formulas.

4. USE RULES OF DIFFERENTIATION TO SOLVE PROBLEMS OF ALGEBRIC FUNCTIONS.

4.1 Differentiate from first principle sin x ,cosx,tang x.
4.2 Derive formula for derivation of sec x,cosec x, cot x.
4.3 Find differential coefficient of inverse trigonometric functions.

5. USE RULES OF DIFFERENTIATION TO LOGARITHMIC AND EXPONENTIAL FUNCTIONS.

5.1 Derive formulas for differential coefficient of logarithmic and exponential functions.
5.2 Solve problems using these formulas.

6. UNDERSTAND RATE OF CHANGE OF ONE VARRIABLE WITH RESPECT TO ANOTHER.

6.1 Write expression for velocity, acceleration, and slope of a line.
6.2 Define an increasing and decreasing function, maxima and minima values, ofinflection.
6.3 Explain criteria for maxima and minima values of a function.
6.4 Solve problems involving rate of change of variables.

7. APPLY CONCEPT OF INTEGRATION IN SOLVING TECHNOLOGICALPROBLEMS

7.1 Explain the concept of integration
7.2 Write basic theorem of integration
7.3 List some important rules of integration
7.4 Derive fundamental formulas of integration
7.5 Solve problems based on these formulas /rules.

8. UNDERSTAND DIFFERENT METHODS OF INTEGRATION.

8.1 List standard formulas
8.2 Integrate a function by substitution method
8.3 Find integrals by the method of integration by parts
8.4 Solve problems using these methods.

9. UNDERSTAND THE METHOD OF SOLVING DEFENITE INTEGRALS.

9.1 Define definite integral
9.2 List properties of definite integrals using definite integrals.
9.3 Find areas under curves
9.4 Solve problems of definite integrals.

10. UNDERSTAND THE CONCEPT OF PLANE ANALYTIC GEOMETRY.

10.1 Explain the rectangular coordinate system
10.2 Locate points in different quadrants
10.3 Derive distance formula
10.4 Prove section formula
10.5 Derive slope formula
10.6 Solve problems using the above formulas.

11. USE EQUATIONS OF STRAIGHT LINE IN SOLVING PROBLEMS.

11.1 Define a straight line
11.2 State general form of equation of a straight line
11.3 Derive slope intercept and intercept forms of equations.
11.4 Derive expression for angle between two straight lines
11.5 Derives conditions of perpendicularity and parallelism lines
11.6 Solve problems involving these equations/formulas.

12. SOLVE TECHNOLOGICAL PROBLEMS USING EQUATION OF CIRCLE.

12.1 Define a circle
12.2 Describe standards, central and general forms of the equation of a circle.
12.3 Convert general forms to the central forms of equation of a circle.
12.4 Deduce formulas for the radius and the coordinates of the centre of a circle fromthe general form.
12.5 Derive equation of the circle passing through three given points.
12.6 Solve problems involving these equations

Mgm-211 BUSINESS COMMUNICATION

T	P	C
1	0	1

Total contact hours

Theory 32 Hrs

Prerequisites: The students shall already be familiar with the language concerned.

AIMS The course has been designed to enable the students to.

1. Develop communication skills.
2. Understand basic principles of good and effective business writing in commercial and industrial fields.
3. Develop knowledge and skill to write technical report with confidence and accuracy.

COURSE CONTENTS

1. COMMUNICATION PROCESS. 6 Hours

- 1.1 Purposes of communication
- 1.2 Communication process
- 1.3 Distortions in communication
- 1.4 Consolidation of communiqué
- 1.5 Communication flow
- 1.6 Communication for self-development

2. ORAL COMMUNICATION SKILLS. 6 Hours

- 2.1 Significance of speaking.
- 2.2 Verbal and non-verbal messages.
- 2.3 Strategic steps of speaking.
- 2.4 Characteristics of effective oral messages.
- 2.5 Communication Trafficking.
- 2.6 Oral presentation.

3. QUESTIONING SKILLS. 3 Hours

- 3.1 Nature of question.
- 3.2 Types of questions.
- 3.3 Characteristics of a good question.
- 3.4 Questioning strategy

4. LISTENING SKILLS. 5 Hours

- 4.1 Principles of active listening.
- 4.2 Skills of active listening.
- 4.3 Barriers to listening.
- 4.4 Reasons of poor listening.
- 4.5 Giving Feedback.

5. INTERVIEWING SKILLS. 3 Hours

- 5.1 Significance of interviews.
- 5.2 Characteristics of interviews.
- 5.3 Activities in an interviewing situation
- 5.4 Types of interviews.
- 5.5 Interviewing strategy.

6. REPORT WRITING. 3 Hours

6.1 Goals of report writing
6.2 Report format.
6.3 Types of reports.
6.4 Report writing strategy.

7. READING COMPREHENSION. 2 Hours

7.1 Reading problems.
7.2 Four Reading skills.

8. GROUP COMMUNICATION. 4 Hours

8.1 Purposes of conducting meetings.
8.2 Planning a meeting.
8.3 Types of meetings.
8.4 Selection f a group for meeting.
8.5 Group leadership skills.
8.6 Running a successful meeting.
8.7 Active participation techniques.

RECOMMENDED BOOKS

1. Sh. Ata-ur-Rehman Effective Business Communication & Report Writing.
2. Ulman J.N. Could JR. Technical Reporting.

Mgm-211 BUSINESS COMMUNICATION.

INSTRUCTIONAL OBJECTIVES

1. **UNDERSTAND THE COMMUNICATION PROCESS.**
   - 1.1 State the benefits of two way communication.
   - 1.2 Describe a model of communication process.
   - 1.3 Explain the major communication methods used in organization.
   - 1.4 Identify the barriers to communication and methods of overcoming these barriers.
   - 1.5 Identify misconceptions about communication.

2. **UNDERSTAND THE PROCESS OF ORAL.**
   - 2.1 Identify speaking situations with other peoples.
   - 2.2 Identify the strategy steps of speaking.
   - 2.3 Identify the characteristics of effective speaking.
   - 2.4 State the principles of one-way communication.
   - 2.5 State the principles of two-way communication.
   - 2.6 Identify the elements of oral presentation skills.
   - 2.7 Determine the impact of non-verbal communication on oral communication.

3. **DETERMINE THE USES OF QUESTIONING SKILLS TO GATHER AND CLARIFY INFORMATION IN THE ORAL COMMUNICATION PROCESS.**
   - 3.1 Identify different types of questions.
   - 3.2 Determine the purpose of each type of question and its application.
   - 3.3 Identify the hazards to be avoided when asking questions.
   - 3.4 Demonstrate questioning skills.

4. **DEMONSTRATE THE USE OF ACTIVE LISTENING SKILL IN THE ORAL COMMUNICATION PROCESS.**
   - 4.1 State the principles of active listening.
   - 4.2 Identify skills of active listening.
   - 4.3 Identify barriers to active listening.
   - 4.4 State the benefits of active listening.
   - 4.5 Demonstrate listening skills.
   - 4.6 Explain the importance of giving and receiving feedback.

5. **Determine the appropriate interview type for the specific work-related situation and conduct a work-related interview.**
   - 5.1 State the significance of interviews.
   - 5.2 State the characteristics of interviews.
   - 5.3 Explain the activities in an interviewing situation.
   - 5.4 Describe the types of interviews.
   - 5.5 Explain the interviewing strategy.
   - 5.6 Prepare instrument for a structured interview.

6. **PREPARE A REPORT OUT-LINE, BASED ON SUBJECT MATTER AND AUDIENCE.**
   - 6.1 Identify the different types of reports.
   - 6.2 Determine when to use an informal or formal report presentation.
   - 6.3 Identify the stages of planning a report.
   - 6.4 Identify the parts of a report and choose the parts appropriate for each type of report.

6.5 Draft a report outline.

7. DEMONSTRATE READING COMPREHENSION.

7.1 Identify major reading problems.
7.2 Identify basic reading skills.
7.3 State methods of previewing written material.
7.4 Identify methods of concentration when reading.
7.5 Demonstrate reading comprehension.

8. UNDERSTAND THE PRINCIPLES OF GROUP COMMUNICATIONS.

8.1 State the purpose and characteristics of major types of meeting.
8.2 Explain responsibilities of a meeting/committee.
8.3 Identify problems likely to be faced at meeting and means to overcome these problems.
8.4 Distinguish between content and process at meetings.
8.5 Explain the key characteristics of a good group facilitator.

Mgm-221 BUSINESS MANAGEMENT AND INDUSTRIAL ECONOMICS

Total Contact Hours

		T	P	C
Theory	32			
Practical	0	1	0	1

AIMS The students will be able to develop management skills, get acquainted the learner with the principles of management and economic relations and develop commercial/economic approach to solve the problems in the industrial set-up.

COURSE CONTENTS

1. ECONOMICS **2 Hours**

1.1 Definition: Adam Smith, Alfred Marshall, Prof. Robins.
1.2 Nature and scope
1.3 Importance for technicians.

2. BASIC CONCEPTS OF ECONOMICS **1 Hour**

2.1 Utility
2.2 Income
2.3 Wealth
2.4 Saving
2.5 Investment
2.6 Value.

3. DEMAND AND SUPPLY. **2 Hours**

3.1 Definition of demand.
3.2 Law of demand.
3.3 Definition of supply.
3.4 Law of supply.

4. FACTORS OF PRODUCTION. **2 Hours**

4.1 Land
4.2 Labour
4.3 Capital
4.4 Organization.

5. BUSINESS ORGANIZATION. **3 Hours**

5.1 Sole proprietorship.
5.2 Partnership
5.3 Joint stock company.

6. ENTERPRENEURIAL SKILLS **4 Hours**

6.1 Preparing, planning, establishing, managing, operating and evaluating relevant resources in small business.
6.2 Business opportunities, goal setting.
6.3 Organizing, evaluating and analyzing opportunity and risk tasks.

7. SCALE OF PRODUCTION. 2 Hours

7.1 Meaning and its determination.
7.2 Large scale production.
7.3 Small scale production.

8. ECONOMIC SYSTEM 3 Hours

8.1 Free economic system.
8.2 Centrally planned economy.
8.3 Mixed economic system.

9. MONEY. 1 Hour

9.1 Barter system and its inconveniences.
9.2 Definition of money and its functions.

10. BANK. 1 Hour

10.1 Definition
10.2 Functions of a commercial bank.
10.3 Central bank and its functions.

11. CHEQUE 1 Hour

11.1 Definition
11.2 Characteristics and kinds of cheque.
11.3 Dishonor of cheque.

12. FINANCIAL INSTITUTIONS 2 Hours

12.1 IMF
12.2 IDBP
12.3 PIDC

13. TRADE UNION 2 Hours

13.1 Introduction and brief history.
13.2 Objectives, merits and demerits.
13.3 Problems of industrial labor.

14. INTERNATIONAL TRADE. 2 Hours

14.1 Introduction
14.2 Advantages and disadvantages.

15. MANAGEMENT 1 Hour

15.1 Meaning
15.2 Functions

16. ADVERTISEMENT 2 Hours

16.1 The concept, benefits and draw-backs.
16.2 Principal media used in business world.

17. ECONOMY OF PAKISTAN 1 Hour

17.1 Introduction
17.2 Economic problems and remedies.

BOOKS RECOMMENDED

1. Nisar-ud-Din, Business Organization, Aziz Publisher, Lahore
2. M. SaeedNasir,Introduction to Business, IlmiKitabKhana, Lahore.
3. S.M. Akhtar, An Introduction to Modern Economics, United Limited, Lahore.

Mgm-221 BUSINESS MANAGEMENT AND INDUSTRIAL ECONOMICS.

INSTRUCTIONAL OBJECTIVES

1. UNDERSTAND THE IMPORTANCE OF ECONOMICS.

1.1 State definition of economics given by Adam Smith, Alfred Marshall and Professor Robins.
1.2 Explain nature and scope of economics.
1.3 Describe importance of study of economics for technicians.

2. UNDERSTAND BASIC TERMS USED IN ECONOMICS.

2.1 Define basic terms, utility, income, wealth, saving, investment and value.
2.2 Explain the basic terms with examples

3. UNDERSTAND LAW OF DEMAND AND LAW OF SUPPLY.

3.1 Define Demand.
3.2 Explain law of demand with the help of schedule and diagram.
3.3 State assumptions and limitation of law of demand.
3.4 Define Supply.
3.5 Explain law of Supply with the help of schedule and diagram.
3.6 State assumptions and limitation of law of supply.

4. UNDERSTAND THE FACTORS OF PRODUCTION

4.1 Define the four factors of production.
4.2 Explain labour and its features.
4.3 Describe capital and its peculiarities.

5. UNDERSTAND FORMS OF BUSINESS ORGANIZATION.

5.1 Describe sole proprietorship, its merits and demerits.
5.2 Explain partnership, its advantages and disadvantages.
5.3 Describe joint stock company, its merits and demerits.
5.4 Distinguish public limited company and private limited company.

6. UNDERSTAND ENTERPRENEURIAL SKILLS

6.1 Explain preparing, planning, establishing and managing small business set up
6.2 Explain evaluating all relevant resources
6.3 Describe organizing analyzing and innovation of risk of task

7. UNDERSTAND SCALE OF PRODUCTION.

7.1 Explain scale of production and its determination.
7.2 Describe large scale production and it merits.
7.3 Explain small scale of production and its advantages and disadvantages.

8. UNDERSTAND DIFFERENT ECONOMIC SYSTEMS.

8.1 Describe free economic system and its characteristics.
8.2 Explain centrally planned economic system, its merits and demerits.
8.3 State mixed economic system and its features.

9. UNDERSTAND WHAT IS MONEY

9.1 Define money
9.2 Explain barter system and its inconveniences.
9.3 Explain functions of money.

10. UNDERSTAND BANK AND ITS FUNCTIONS.

10.1 Define bank.
10.2 Describe commercial bank and its functions.
10.3 State central bank and its functions.

11. UNDERSTAND CHEQUE AND DISHONOR OF CHEQUE.

11.1 Define cheque.
11.2 Enlist the characteristics of cheque.
11.3 Identify the kinds of cheque.
11.4 Describe the causes of dishonor of a cheque.

12. UNDERSTAND FINANCIAL INSTITUTIONS.

12.1 Explain IMF and its objectives.
12.2 Explain organizational set up and objectives of IDBP.
12.3 Explain organizational set up and objectives of PIDC.

13. UNDERSTAND TRADE UNION, ITS BACKGROUND AND FUNCTIONS.

13.1 Describe brief history of trade union.
13.2 State functions of trade union.
13.3 Explain objectives, merits and demerits of trade unions.
13.4 Enlist problems of industrial labour.

14. UNDERSTAND INTERNATIONAL TRADE.

14.1 Explain international trade.
14.2 Enlist its merits and demerits.

15. UNDERSTAND MANAGEMENT

15.1 Explain meaning of management.
15.2 Describe functions of management.
15.3 Identify the problems of business management.

16. UNDERSTAND ADVERTISEMENT.

16.1 Explain the concept of advertisement.
16.2 Enlist benefits and drawbacks of advertisement.
16.3 Describe principal media of advertisement used in business world.

17. UNDERSTAND THE ECONOMIC PROBLEMS OF PAKISTAN.

17.1 Describe economy of Pakistan.
17.2 Explain economic problems of Pakistan
17.3 Explain remedial measures for economic problems of Pakistan.

Ftw-214 Design & Pattern Engineering - II

Total Contact Hours

		T	P	C
Theory	64			
Practical	192	2	6	4

Course Contents

1. Modeling and Pattern Engineering Of Boot constructions **20Hrs**

1.1. Producing a mean form
1.2. Folding copies
1.3. Standard design oxford boot for men
1.4. Standard design Derby boot for men
1.5. Standard design Chelsea boot for men
1.6. Standard design Gibson boot for men
1.7. Study Tour Report of a Boot Factory

2. Modeling and Pattern Engineering of Shoe Constructions **24Hrs**

2.1 Standard design oxford shoe for men
2.2 Standard design Gibson shoe for men
2.3 Standard design Derby Shoe for men
2.4 Standard design Derby Fantasy Shoe for men
2.5 Standard design Slip OnShoe for men
2.6 Standard design StrobleShoe for men
2.7 Standard design Aopenken (derby style) construction
2.8 Standard design apron front monk shoe
2.9 Moccasin (boat shoe)

3. Modeling and Pattern Engineering of Sports Footwear **20Hrs**

3.1 Standard design Football shoe
3.2 Standard design Jogger String lasting
3.3 Standard design Motorbike Boot
3.4 Standard design Karate Shoe
3.5 Standard design Gymnastic Shoe
3.6 Standard design Out & Indoor Shoe
3.7 Standard design Mules
3.8 High leg boot (Std.)
3.9 Motor cycling boot
3.10 Study tour of A Long Boot factory

Recommended Books

1. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
2. R.G.Miller- Manual of Shoe Making, Clarks Limited
3. J.A.J Luijten, P.W.J Velden- Design, Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
4. www.shoetrades.com/Foot- Introduction to Modern Footwear Technology, (STP) SHOE TRADERAS

11. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York

Ftw-214 Design & Pattern Engineering - II

INSTRUCTIONAL OBJECTIVES:

1.Modeling and Pattern Engineering Of Boot constructions

1.1 Making method of Producing a mean form
1.2 Method of making Folding copies
1.3 Method of making Standard design oxford boot for men
1.4 Method of making Standard design Derby boot for men
1.5 Method of making Standard design Chelsea boot for men
1.6 Method of making Standard design Gibson boot for men
1.7 Write a Study Tour Report of a Boot Factory

2 **Modeling and Pattern Engineering of Shoe Constructions**

2.1 Method of making Standard design oxford shoe for men
2.2 Method of making Standard design Gibson shoe for men
2.3 Method of making Standard design Derby Shoe for men
2.4 Method of making Standard design Derby Fantasy Shoe for men
2.5 Method of making Standard design Slip OnShoe for men
2.6 Method of making Standard design StrobleShoe for men
2.7 Method of making Standard design Aopenken (derby style) construction
2.8 Method of making Standard design apron front monk shoe
2.9 Method of making Moccasin (boat shoe)

3.Modeling and Pattern Engineering of Sports Footwear

3.11 Method of making Standard design Football shoe
3.12 Method of making Standard design Jogger String lasting
3.13 Method of making Standard design Motorbike Boot
3.14 Method of making Standard design Karate Shoe
3.15 Method of making Standard design Gymnastic Shoe
3.16 Method of making Standard design Out & Indoor Shoe
3.17 Method of making Standard design Mules
3.18 Method of making High leg boot (Std.)
3.19 Method of making Motor cycling boot

4. Study tour of A Long Boot factory

Ftw-214 Design & Pattern Engineering – II

List of Practical:

1. To Produce a mean form for standard making by using tape method, paper method, vacuum method and CAD method
2. To fold the folding copies for pattern making
3. To make a standard design of oxford boot (for men) and pattern making for manufacturing
4. To make a Standard design Derby boot (for men) and pattern making for manufacturing
5. To make a Standard design Chelsea boot (for men) and pattern making for manufacturing
6. To make a Standard design Gibson boot (for men) and pattern making for manufacturing
7. To make a Standard design oxford shoe (for men) and pattern making for manufacturing
8. To make a Standard design Gibson shoe (for men) and pattern making for manufacturing
9. To make a Standard design Derby Shoe (for men) and pattern making for manufacturing
10. To make a Standard design Derby Fantasy Shoe (for men) and pattern making for manufacturing
11. To make a Standard design Slip On Shoe (for men) and pattern making for manufacturing
12. To make a Standard design Stroble Shoe (for men) and pattern making for manufacturing
13. To make a Standard design Aopenken (derby style) construction and pattern making for manufacturing
14. To make a Standard design apron front monk shoe and pattern making for manufacturing
15. To make a standard design of Moccasin (boat shoe) and pattern making for manufacturing
16. To make a Standard design Football shoe and pattern making for manufacturing
17. To make a Standard design Jogger String lasting and pattern making for manufacturing
18. To make a Standard design Motorbike Boot and pattern making for manufacturing
19. To make a Standard design Karate Shoe and pattern making for manufacturing
20. To make a Standard design Gymnastic Shoe and pattern making for manufacturing
21. To make a Standard design Out & Indoor Shoe and pattern making for manufacturing
22. To make a Standard design Mules and pattern making for manufacturing
23. To make a standard design of High leg boot (Std.) and pattern making for manufacturing
24. To make a standard design of Motor cycling boot and pattern making for manufacturing

Ftw- 223 Footwear Production Technology-II

Total Contact Hours

		T	P	C
Theory	32			
Practical	192	1	6	3

COURSE CONTENTS

1. Upper Leather Stitching **4Hrs**

1.1 General introduction

1.2 What is stitching and stitch type

a) Lock stitch

b) Chain stitch

1.3 Types of seam

1.4 Close seam

1.5 Silk seam

1.6 Lapped seem

1.7 Zigzag seem

1.8 Welted seam

1.9 Brooklyn seem

2. Stitching machines **8Hrs**

2.1 Introduction to the stitching machines

a) Flat bed

b) Post bed

c) Cylinder arm

d) Automatic

2.2 Oiling and cleaning the stitching machine

1.1. Necessary things

a) Scissors

b) Screw drivers

c) Oil can

d) Brush

e) Cloth

2.3 How to clean machine

2.4 Threading the machine

2.5 Necessary things

a) Nalki

b) Winding bobbin

c) Machine with needle

2.6 Needles

(Thread sizes, distance between the stitches)

a) Type of needle

b) Part of needle

2.7 Winding bobbins

Requirements

a) Empty Bobbin

b) Machine

c) Nalki

d) Part of winding bobbin

3 Stitching quality 8hrs

2.10 Top thread

2.11 Bottom thread

2.12 Thread tension during stitching

2.13 Laying out work and equipment on your bench

2.14 Work handling

2.15 Quality Control

2.16 Machine Control

2.17 Guiding Exercises

2.18 Practical Stitching

2.19 Assembling Stitching

4 Organization of Closing 12hrs

4.1 Introduction

4.2 Sequence of operations

4.3 Conveyors

4.4 Work content

4.5 Work potential available

4.6 Balancing the closing room

4.7 Versatility

4.8 Reserve operative capacity

Recommended Books

1. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
2. H.J.PATRIC, F.B.S.I - Footwear Technology Dictionary, (STP) SHOE TRADERAS PUBLI
3. R.G.Miller- Manual of Shoe Making, Clarks Limited
4. J.A.J Luijten, P.W.J Velden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
5. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of Footwear Vol.1 & 2, TNO Leather & Shoe Research Institute
6. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York

Ftw-223 Footwear Production Technology-II

Instructional objectives:

1. **Upper Leather Stitching**
   - 1.1 Define stitching and its types
   - 1.2 Types of stitching (Lock stitch, Chain Stitch)
   - 1.3 Define seem and its style
   - 1.4 Types of seem
     - 1.4.1 Close seem
     - 1.4.2 Silked seem
     - 1.4.3 Lapped seem
     - 1.4.4 Zigzag seem
     - 1.4.5 Welted seem
     - 1.4.6 Brooklyn seem

2. **Stitching machines**
   - 2.1 Introduction of stitching machines
   - 2.2 Types of stitching machines
     - 2.2.1 Flat bed
     - 2.2.2 Post bed
     - 2.2.3 Cylinder Arm bed
     - 2.2.4 Strouble machine
   - 2.3 Method of maintaining stitching machines
     - 2.3.1 How to oil and clean stitching machine
   - 2.4 Tools for stitching machines
     - 2.4.1 Scissors, Screw drivers, oil can, brush, cloth etc.
   - 2.5 Maintenance of stitching machine and environment for machine
3. **Threading the machine**
   - 3.1 Introduction of threading and its different types
   - 3.2 Necessary things for threading (Nalki, winding bobbin, Needle)
4. **Needles**
   - 4.1 Types of needles
   - 4.2 How to set a needle in machine
   - 4.3 Role of needle in stitching machine
   - 4.4 Different parts of needle
5. **Parts of machine**

5.1 Winding bobbin requirements

5.1.1 Different things like empty bobbin, nalki etc.

6. Thread

6.1 Introduction of thread

6.2 Types of Thread

6.2.1 Top thread

6.1.2 Bottom thread

6.3 Tension during stitching

6.4 Rules of quality control

6.5 How to maintain good quality

6.6 Method of upper leather stitching

7. Organization of Closing

7.1 Introduce the closing room

7.2 Explain the Sequence of operations

7.3 Teach the setting of Conveyors

7.4 Explain the Work content

7.5 Explain the Work potential available

7.6 How to Balance the closing room

7.7 Explain the Versatility

7.8 Explain the Reserve operative capacity

Ftw- 223 Footwear Production Technology –II

List of Practical:

1. To do stitching exercise no.1 to stitch the straight line
2. To do stitching exercise no.2 to stitch the half-straight line
3. To do stitching exercise no.3 to stitch the curved and straight line
4. To do stitching exercise no.4 to stitch the curved line
5. To do stitching exercise no.5 to stitch the half-round line
6. To do stitching exercise no.6 to stitch the full round line
7. To do stitching exercise no.7 to stitch the zigzag line
8. To do stitching exercise no.8 to stitch the circle line
9. To do stitching exercise no.9 to stitch the different shapes
10. To do stitching exercise no.10 to stitch the different shapes
11. To do exercises of Lock stitch on leather and synthetic material (5 exercises)

12. To do Exercises of Chain stitch on leather and synthetic material(5 exercises)
13. To do Exercises of Close seam on leather and synthetic material(5 exercises)
14. To do Exercises of Silk seam on leather and synthetic material(5 exercises)
15. To do Exercises of Lapped seem on leather and synthetic material(5 exercises)
16. To do Exercises of Zigzag seem on leather and synthetic material(5 exercises)
17. To do Exercises of Welted seam on leather and synthetic material(5 exercises)
18. To do Exercises of Brooklyn seem on leather and synthetic material(5 exercises)
19. To keep the Maintenance of Stitching post bed Machine on different parts
20. To keep the Maintenance of Stitching flatbed Machine on different parts
21. To keep the Maintenance of Stitching slender arm Machine on different parts
22. To keep the Maintenance of Stitching automatic Machine on different parts
23. Oiling the stitching machines
24. Threading on the stitching machines
25. Cleaning the stitching machines
26. To assemble the components for stitching

Ftw-232 Grading of Shoe Components

Total Contact Hours

		T	P	C
Theory	32			
Practical	96	1	3	2

Course Contents

1 Shoe sizes and sizing system **8hrs**

1.1 Principles of size and fit
1.2 French sizing system
1.3 English sizing system
1.4 Mondo-point system
1.5 Size conversion

2. Grading of Shoe Components **8hrs**

2.1 Hand Grading of Shoe Components Grading of Shoe Upper Components by use of grading compass for the following types of Shoes.
2.2 Introduction and importance of grading.
2.3 Basic principles of grading.
2.4 Basic principles (Types) of hand grading
2.5 Hand grading of court shoe
2.6 Hand grading of an Oxford shoe
Hand grading of a Gibson shoe
a) Toe
b) Vamp
c) Quarter

3. Machine Grading of Shoe Components **12hrs**

3.1 Introduction and importance of grading.
3.2 Basic Introduction of Grading Machine (Langham).
3.3 Basic principles (Types) of machine grading
3.4 Measurement of Master Patterns.
3.5 Upper calculation of adjustment figures
3.6 French, English
3.7 Preparation of zinc patterns for Grading
3.8 Cutting of zinc patterns for a court shoe.
3.9 Cutting of zinc patterns for an Oxford shoe.
3.10 Cutting of zinc patterns for an Oxford Boot.
3.11 Cutting of zinc patterns for a Derby shoe.
3.12 Cutting of zinc patterns for a Sandal.

4. Normal Grading of Oxford shoe **4hrs**

4.1 Normal Grading of a Court shoe
4.2 Normal Grading of an Oxford Boot.
4.3 Normal Grading of a Derby shoe
4.4 Normal Grading of a Sandal
4.5 Bottom calculation of adjustment figures
a) French
b) English
4.6 Cutting of Bottom zinc patterns
4.7 Cutting of zinc patterns for a Last profile.
4.8 Normal Grading of Bottom Patterns
4.9 Normal Grading of a Last profile.
4.10 Dies Grading for cut outs
4.11 Making of the Marking Patterns

Recommended Books

1. J.A.J Luijten, P.W.J Velden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute

2. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of Footwear Vol.1 & 2, TNO Leather & Shoe Research InstituteJ.S Harding "The Boot and Shoe Industry" SIR ISAAC PITMAN & SONS LTD, New York

Ftw-232 Grading of Shoe Components

Instructional Objectives

1. Shoe sizes and sizing system

1.1 Explain Shoe size and sizing system, Principles of size and fit
1.2 Introduction and explanation of French sizing system

1.3 Introduction and explanation of English sizing system
1.4 Introduction and explanation of Mondo-point system
1.5 Introduction and explanation of Size conversion

2. Grading of Shoe Components

2.1 Introduction of Hand Grading of Shoe Components Grading of Shoe Upper Components by use of grading compass for the following types of Shoes.
2.2 Introduction and importance of grading.
2.3 Explain Basic principles of grading.
2.4 Explain Basic principles (Types) of hand grading
2.5 Introduction and methodology of Hand grading of court shoe
2.6 Introduction and methodology of Hand grading of an Oxford shoe
2.7 Introduction and methodology of Hand grading of a Gibson shoe
d) Toe
e) Vamp
f) Quarter

3. Machine Grading of Shoe Components

3.1 Introduction and importance of grading.
3.2 To aware about Basic Introduction of Grading Machine (Langham).
3.3 Explanation of Basic principles (Types) of machine grading
3.4 How to make Measurement of Master Patterns.
3.5 How to make Upper calculation of adjustment figures
3.6 Introduction and explanation of French and English sizing system
3.7 How to make Preparation of zinc patterns for Grading
3.8 Preparation and methodology of Cutting of zinc patterns for a court shoe.
3.9 Preparation and methodology of Cutting of zinc patterns for an Oxford shoe.
3.10 Preparation and methodology of Cutting of zinc patterns for an Oxford Boot.
3.11 Preparation and methodology of Cutting of zinc patterns for a Derby shoe.
3.12 Preparation and methodology of Cutting of zinc patterns for a Sandal.

4. Normal Grading of Oxford shoe

4.1 How to make Normal Grading of a Court shoe
4.2 How to make Normal Grading of an Oxford Boot.
4.3 How to make Normal Grading of a Derby shoe
4.4 How to make Normal Grading of a Sandal
4.5 What are the steps taken in Bottom calculation of adjustment figures (French & English)
4.6 What is the methodology of Cutting of Bottom zinc patterns
4.7 What is the methodology of Cutting of zinc patterns for a Last profile.
4.8 What is the methodology of Normal Grading of Bottom Patterns
4.9 What is the methodology of Normal Grading of a Last profile.
4.10 What is the methodology of Dies Grading for cut outs
4.11 What is the methodology of Making of the Marking Patterns

Ftw-232 Grading of shoe component

List of Practical:

1. To Prepare of zinc patterns for Grading
2. To cut of zinc patterns for a court shoe.
3. To cut of zinc patterns for an Oxford shoe.
4. To cut of zinc patterns for an Oxford Boot.
5. To cut of zinc patterns for a Derby shoe.
6. To cut of zinc patterns for a Sandal.
7. To make Bottom calculation of adjustment figures
8. To cut of Bottom zinc patterns
9. To cut of zinc patterns for a Last profile
10. To do Normal Grading of Bottom Patterns
11. To do Normal Grading of a Last profile
12. To make Dies for Grading to cut outs
13. To Make the Marking Patterns
14. To grade the components of different styles of shoe on French Sizing System for upper and bottom grading
15. To grade the components of different styles of boot on French Sizing System for upper and bottom grading
16. To grade the components of different styles of sandal on French Sizing System for upper and bottom grading
17. To grade the components of different styles of slipper on French Sizing System for upper and bottom grading
18. To grade the components of different styles of shoe on English Sizing System for upper and bottom grading
19. To grade the components of different styles of boot on English Sizing System for upper and bottom grading
20. To grade the components of different styles of sandal on English Sizing System for upper and bottom grading
21. To grade the components of different styles of slipper on English Sizing System for upper and bottom grading
22. To grade the components of different styles of shoe on Mondo Point Sizing System for upper and bottom grading

23. To grade the components of different styles of boot on Mondo Point Sizing System for upper and bottom grading
24. To grade the components of different styles of sandal on Mondo Point Sizing System for upper and bottom grading
25. To grade the components of different styles of slipper on Mondo Point Sizing System for upper and bottom grading
26. To convert the Size into diverse Conversion
27. To do Hand Grading with compass
28. To do Machine Grading with grading machine

Ftw-244 Footwear Materials-I

Total Contact Hours

Theory	96	T	P	C
Practical	96	3	3	4

Course Contents

(Part-A)

1. Leather **16 hrs**

1.1 Introduction of leather

1.2 History of Leather

1.3 Leather Process flow Chart

1.4 Tanning and Finishing Upper Leather

1.5 Lining and Socking Leather and Reptile Leather

2. Leather Boards **8hrs**

2.1 Types and Properties of leather boards

2.2 Stock preparation

2.3 Board making

2.4 Testing of Leather board

3. Rexine **24hrs**

3.1 Introduction of rexine

3.2 Types of rexine

3.3 Applications of rexine

3.4 Properties of rexine

3.5 Manufacturing of rexine

3.6 Difference between rexine and leather

(Part-B)

4. Textile **20hrs**

4.1 Fibers

4.2 Yarns

4.3 Woven Fabrics

4.4 Lining Fabrics

4.5 Lining Coated Fabrics

4.6 Cloth Specification

4.7 Finishing

4.8 Special Fabrics

4.9 Properties of Shoe Fabrics

4.10 Fabric Analysis and Testing

4.11 Threads, Laces and Narrow Fabrics

5. Shoe Finishes, Cleaners and Dressings **16hrs**

5.1 Wax Polishes and creams

5.2 Upper Leather Finishes

5.3 Upper Synthetic Finishes

5.4 Special Dressings

6. Miscellaneous Materials **12 hrs**

6.1 Zip Fasteners

6.2 Touch and Close Fasteners

6.3 Binding Tapes

6.4 Eyelets

6.5 Buckles

Recommended Books

3. J.A.J Luijten, P.W.J Velden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
4. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of Footwear Vol.1 & 2, TNO Leather & Shoe Research Institute
5. J.S Harding "The Boot and Shoe Industry" SIR ISAAC PITMAN & SONS LTD, New York
6. Muazzam Mahmood Mansoor "Principles of Shoe Designing" Technical Education & Vocational Training Authority, Punjab

Ftw-244 Footwear Materials-I

Instructional Objectives

1. Leather

1.1 To introduce of leather

1.2 Explain the History of Leather

1.3 Make practical of the Leather Processes

1.4 Explain the Tanning and Finishing Upper Leather

1.5 Explain the Lining and Socking Leather and Reptile Leather

2. Leather Boards

2.1 Explain the Types and Properties of leather boards

2.2 Explain the Stock preparation

2.3 Manufacturing process of Board making

2.4 Testing of Leather board

3. Rexine

3.1 To Introduce of rexine

3.2 Explain the Types of rexine

3.3 How to Apply of rexine

3.4 Examine the Properties of rexine

3.5 Manufacturing process of rexine

3.6 Differentiate between rexine and leather

4. Textile

4.1 Explain of Fibers

4.2 Explain of Yarns

4.3 Explain of Woven Fabrics

4.4 Explain of Lining Fabrics

4.5 Explain of Lining Coated Fabrics

4.6 Explain of Cloth Specification

4.7 Explain of Finishing

4.8 Explain of Special Fabrics

4.9 Explain of Properties of Shoe Fabrics

4.10 Explain of Fabric Analysis and Testing

4.11 Explain of Threads, Laces and Narrow Fabrics

5. Shoe Finishes, Cleaners and Dressings

5.1 To introduce of Wax Polishes and creams

5.2 Manufacturing process of Upper Leather Finishes

5.3 Manufacturing process ofUpper Synthetic Finishes

5.4 Explain the Special Dressings

6. Miscellaneous Materials

6.1 Explain the Zip Fasteners

6.2 Explain the Touch and Close Fasteners

6.3 Explain the Binding Tapes

6.4 Explain the Eyelets

6.5 Explain the Buckles

Ftw-244 Footwear Materials-I

List of Practical:

1. Manufacturing process of leather in tannery
    - To Select of raw stock
    - To sort and grade the skin and hide
    - To do preserving methods
    - To make of wet blue
    - To do manufacturing of crust
    - To formulate of finish mixture
    - To formulate finish formulation and application
2. Manufacturing process of leather board

- To crush the waste of leather (trimmings)
- To clean of material
- To do manufacturing method like mixing in glue and shaping in sheets etc.

3. To do the Manufacturing process of rexine
4. To do the Manufacturing process of textile
5. To do the Manufacturing process of Shoe Finishes
6. To do the manufacturing process of Cleaners
7. To do the manufacturing process of Dressings
8. To aware the manufacturing of Zip Fasteners
9. To aware the manufacturing of Touch and Close Fasteners
10. To aware the manufacturing of Binding Tapes
11. To aware the manufacturing of Eyelets
12. To aware the manufacturing of Buckles

Ftw-254 Foot Anatomy & Last Modeling

Total Contact Hours

		T	P	C
Theory	96			
Practical	96	3	3	4

Course Contents

(Part –A)

1. Introduction of the Body **16 Hrs**

1.1 Introduction of the body
1.2 The tissues of the body
1.3 The Bones

1.4 The Joints
1.5 Muscles and its action
1.6 Effects of high heels
1.7 Vessels and Nerves

2. The Foot and its Structure **20 Hrs**

2.1 Structure of the foot
2.2 The mechanical components of the foot
2.3 Bones of the foot
2.4 Arches of the foot
2.5 Muscles of the foot
2.6 Extrinsic
2.7 Fractures of the foot
2.8 Pronation
2.9 Movements of the foot

3. Ligaments and Muscles of the Foot and Ankle **12 Hrs**

3.1 Functions of Ligaments and ankle
3.2 Ligaments around the ankle
3.3 The Ligaments of the arches of the foot
3.4 The leg muscles acting on the feet
3.5 The muscles of the toes

(Part –B)

4. Foot and foot measurements **20Hrs**

4.1 Shape of the foot
4.2 Action in walking
4.3 Foot skeleton
4.4 Common Faults in the design of the footwear
4.5 Measurements on the foot
4.6 Foot surveys

5. Foot Hygiene and foot Troubles **8Hrs**

5.1 Hygiene of the foot
5.2 Blisters, Callosities and Corns
5.3 Deformities of the whole foot
5.4 Relief of Bunions
5.5 Relief of Foot-strain and flat-foot
5.6 Harmfulness of arch supports

6. Fundamentals of Lasts **8Hrs**

6.1 Anatomical aspects
6.2 Definition of last dimensions
6.3 Production and grading of lasts
6.4 Types of lasts

7. Measurements and Lasts **8Hrs**

7.1 Methods of measuring the foot
7.2 Scientific classification and measurement
7.3 Last and last models
7.4 Insole grading
7.5 The manufacture of last
7.6 Last measurements

Recommended Books

1. J.A.J Luijten, P.W.J Velden- Principles of Shoe Designing Vol.1 & 2, TNO Leather & Shoe Research Institute
2. PrabirDey- Last Modeling Part 1 , 2 and 3, RSLI, INDIA
3. Curriculum of the Footwear Centre- Module 1---------to-------10, investor in people tresham institute of further & higher education London
4. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York
5. Muazzam Mahmood Mansoor “Principles of Shoe Designing” Technical Education & Vocational Training Authority, Punjab
6. Muazzam Mahmood Mansoor “Pattern Engineering of Shoe Components” Technical Education & Vocational Training Authority, Punjab

Ftw-254 Foot Anatomy & Last Modeling

Instructional objectives:

1.. Introduction of the Body

1.1 Introduce of the body
1.2 Explain the tissues of the body
1.3 Explain the Bones

1.4 Explain the Joints
1.5 Explain the Muscles and its action
1.6 Explain the Effects of high heels
1.7 Explain the Vessels and Nerves

2 The Foot and its Structure

2.1 Explanation theStructure of the foot
2.2 Explanation the mechanical components of the foot
2.3 Explanation theBones of the foot
2.4 Explanation theArches of the foot
2.5 Explanation theMuscles of the foot
2.6 Explanation theExtrinsic
2.7 Explanation theFractures of the foot
2.8 Explanation thePronation
2.9 Explanation theMovements of the foot

3 Ligaments and Muscles of the Foot and Ankle

3.1 Explanation theFunctions of Ligaments and ankle
3.2 Explanation theLigaments around the ankle
3.3 To Explain The Ligaments of the arches of the foot
3.4 To Explain The leg muscles acting on the feet
3.5 To Explain The muscles of the toes

4.Foot and foot measurements

6.1 To Explain Shape of the foot
6.2 To Explain Action in walking
6.3 To Explain Foot skeleton
6.4 To Explain Common Faults in the design of the footwear
6.5 To Explain Measurements on the foot
6.6 To Explain Foot surveys

7. Foot Hygiene and foot Troubles

7.1 To Explain Hygiene of the foot
7.2 To Explain Blisters, Callosities and Corns
7.3 To Explain Deformities of the whole foot
7.4 To Explain Relief of Bunions
7.5 To Explain Relief of Foot-strain and flat-foot
7.6 To Explain Harmfulness of arch supports

8. Fundamentals of Lasts

8.1 To Explain Anatomical aspects
8.2 To Explain Definition of last dimensions
8.3 To Explain Production and grading of lasts
8.4 To Explain Types of lasts

9. Measurements and Lasts

9.1 To train Methods of measuring the foot
9.2 To train Scientific classification and measurement
9.3 To train Last and last models
9.4 To trainI nsole grading
9.5 To train The manufacture of last
9.6 To train Last measurements

Ftw-254 Foot Anatomy & Last Modeling

List of Practical:

1. To introduce the parts of body

2. To introduce the skeleton of the body especially on pressure base
3. To show the function and ligaments of the foot and ankle
4. To make the Sketch of the foot for measurement the size of the foot
5. To draw the parts of the sketch of foot
6. To make the Foot Skeleton for knowing
7. To mention the parts name of the foot skeleton
8. To take the Measurement on the foot
9. To search the common faults in the design of the footwear
10. To take the Foot Surveys
11. To introduce the last of different materials
12. To take the Last Dimension
13. To make the manufacturing process of wooden last
14. To do the grading of shoe last
15. To do the Product Grading of the shoe Last
16. To take the insole grading
17. To make the Last Grading for shoe construction
18. To make practice on the Exercises on Last Moulding

اسلامیات/مطالعہ پاکستان

نصاب (سال سوم)

حصہ اول	اسلامیات	Gen 311	ٹی	پی	سی
			1	0	1

حصہ دوم مطالعہ پاکستان

موضوعات کل وقت 20 گھنٹے

1 قرآن مجید

سورۃ الفاتحہ۔ آیۃ الکرسی۔ سورۃ البقرہ کی آخری آیات از امن الرسول تا آخر اور سورہ اخلاص معہ ترجمہ وتشریح

2 دس منتخب احادیث معہ ترجمہ وتشریح

- بنی الاسلام علی خمس شهادة ان لا اله الا الله و اقام الصلوة و ايتاء الزكوة و حج البيت وصوم رمضان
- الدين النصيحه
- المستشار المؤتمن
- للمومن على المومن ست خصال يعوده اذا مرض و يشمته اذا مات ويجيبه اذا دعاه ويسلم عليه اذالقيه و يشمت اذا عطس و ينصح له اذاغاب او شهد لا تخن من خانک
- لا يدخل الجنة قاطع
- ان الله حرم عليكم عقوق الامهات و اضاعة المال
- يسرا ولا تعسرا بشرا ولا تنفرا
- ذاق طعم الايمان من رضى بالله و بالاسلام دينا و بمحمدنبياً
- افضل الذكر لااله الا الله

3 حقوق وفرائض

حصول تعلیم بطور فرض ، والدین اور اولاد کے حقوق وفرائض، ہمسایہ کے حقوق

4 اسلام کی اخلاقی اقدار

صبر واستقلال۔ عفو ودرگزر۔ ایفائے عہد۔ اخوت۔ ایثار وقربانی

نصاب اخلاقیات (غیر مسلم طلباء کے لئے)

سال سوم	Gen-311	ٹی	پی	سی
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کل وقت 20 گھنٹے

موضوعات

- احساس ذمہ داری
- مثبت ذہن
- عدل وانصاف
- قومی خدمت کا جذبہ
- فکر ونظر کی پاکیزگی
- احترام آدمیت
- شائستگی
- عفو ودرگذر
- بردباری
- خود انحصاری
- اثر ونفوذ
- جامعیت
- اپنی ذات کی معرفت (بذریعہ ہم عصر طلباء۔ اساتذہ۔ اہم شخصیات، ادارہ)

منتخب احادیث

عمومی مقصد۔ احادیث کی روشنی میں اسلامی تعلیمات پر عمل پیرا ہو سکے۔

خصوصی مقاصد

- احادیث کا ترجمہ بیان کر سکے۔
- احادیث کی تشریح کر سکے۔
- معاشرتی اور انفرادی زندگی میں احادیث سے راہنمائی حاصل کر سکے۔

حقوق و فرائض

عمومی مقصد ۔ اسلامی معاشرے کا ایک اچھا فرد بن سکے۔

خصوصی مقاصد

- والدین کے حقوق و فرائض بیان کر سکے۔
- ہمسائیوں کے حقوق بیان کر سکے۔
- اسلام میں حقوق و فرائض کی اہمیت بیان کر سکے۔
- حقوق و فرائض کی آگاہی کی صورت میں اپنے اندر خدمت خلق کا جذبہ پیدا کر سکے۔

اسلامی اقدار

عمومی مقصد ۔ طالب علم:

جان سکے گا کہ تعلیم کا مقصد حسن اخلاق سے متصف ہونا ہے

خصوصی مقاصد

- اخلاق کے معنی و مفہوم کو بیان کر سکے۔
- اسلام میں حسن اخلاق کی اہمیت بیان کر سکے۔
- قرآن و سنت کی روشنی میں صبر و استقلال کی اہمیت بیان کر سکے۔
- اسلام میں عفو و درگذر کی اہمیت بیان کر سکے۔
- ایفائے عہد کی اہمیت بیان کر سکے۔
- اخوت کے معنی و مفہوم کو بیان کر سکے۔
- اخوت اسلامی کی اہمیت بیان کر سکے۔
- اسلام کی اعلیٰ اقدار کو اپنا کر مثالی معاشرہ پیدا کر سکے۔

نصاب (سال سوم)

مطالعہ پاکستان	Gen-311	ٹی	پی	سی
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حصہ دوم

کل وقت 12 گھنٹے

قیام پاکستان

موضوعات

- باؤنڈری کمیشن
- ریڈکلف ایوارڈ
- تقسیم بنگال وکلکتہ
- تقسیم پنجاب
- مسئلہ مہاجرین
- ریاستوں کا الحاق
- ریاست جموں وکشمیر
- نہری پانی کا تنازعہ
- قرارداد مقاصد
- علماء کے بائیس نکات
- 1956 - 1962 اور 1973 کے دساتیر کی اسلامی دفعات
- پاکستان کا محل وقوع اور اس کی جغرافیائی اہمیت
- قدرتی وسائل (تیل، گیس، کوئلہ)

مطالعہ پاکستان

حصہ دوم

تدریسی مقاصد

قیام پاکستان

عمومی مقصد: قیام پاکستان کے بعد درپیش مسائل سے آگاہی حاصل کرے اور بیان کرے۔

خصوصی مقاصد

- باؤنڈری کمیشن کی تشکیل اور اس کے فرائض بیان کر سکے۔
- ریڈکلف اور اس کے ایوارڈ کے بارے میں بیان کر سکے۔
- بنگال اور کلکتہ کی تقسیم کی وجوہات بیان کر سکے۔
- پنجاب کی تقسیم کی تفصیل بیان کر سکے۔
- مہاجرین کی آمد سے جو مسائل پیدا ہوئے انہیں بیان کر سکے۔
- ریاستوں کے الحاق کے بارے میں تفصیل بیان کر سکے۔
- ریاست جموں کشمیر کے بارے میں بیان کر سکے۔
- نہری پانی کے تنازعہ کو بیان کر سکے۔
- قرارداد مقاصد کی تفصیلات بیان کر سکے۔
- 22 علماء کے متفقہ اسلامی نکات بیان کر سکے۔
- قیام پاکستان کے بعد نفاذ اسلام کی کوششوں کو بیان کر سکے۔
- پاکستان کے محل وقوع اور اس کی جغرافیائی اہمیت بیان کر سکے۔
- پاکستان میں قدرتی وسائل (تیل، گیس، کوئلہ) کے بارے میں بیان کر سکے۔

Fwt-314 Design & Pattern Engineering - III

Total Contact Hours

		T	P	C
Theory	64			
Practical	192	2	6	4

Course Contents

1. Modelling and pattern Engineering of Ladies Boot & Shoe **24Hrs**

1.1. Standard Design Ladies Court Shoe
1.2. Standard Design Ladies Peep Toe Court Shoe
1.3. Standard Design Ladies Sandal
1.4. Standard Design Ladies Slipper
1.5. Standard Design Ladies Long Heel Shoe
1.6. Standard Design Ladies Short Heel Shoe
1.7. Standard Design Ladies for Long Booty

2. Modelling and pattern Engineering of Traditional Shoe **20Hrs**

2.1 Standard Design of Chappal
2.2 Standard Design of Medical Shoe
2.3 Standard Design of Boys School Shoe
2.4 Standard Design of Girls School Shoe
2.5 Standard Design of Children Ankle Shoe
2.6 Standard Design of Children Veldtschoen Sandal
2.7 Standard Design of Safety Shoe

3. Modelling and pattern Engineering of Miscellaneous Shoe **20Hrs**

3.1 Standard Design of Sandal
3.2 Standard Design of Zip Bootee
3.3 Standard Design of Casual Shoe
3.4 Standard Design of Brogue Shoe
3.5 Fashion Shoe (Creative Work)
3.6 Fashion Boot (Creative Work)
3.7 Current Fashion designing of Shoe and Boot

Recommended Books

7. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
8. R.G.Miller- Manual of Shoe Making, Clarks Limited
9. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of FootwearVol.1 & 2, TNO Leather & Shoe Research Institute
10. www.shoetrades.com/Foot- Introduction to Modern Footwear Technology, (STP) SHOE TRADERAS PUBLI.
11. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York
12. Muazzam Mahmood Mansoor “Pattern Engineering of Shoe Components” Technical Education & Vocational Training Authority, Punjab

Fwt-314 Design & Pattern Engineering - III

INSTRUCTIONAL OBJECTIVES:

1.Modelling and pattern Engineering of Ladies Boot & Shoe

1.1 Method of making Standard Design Ladies Court Shoe

1.2 Method of making Standard Design Ladies Peep Toe Court Shoe

1.3 Method of making Standard Design Ladies Sandal

1.4 Method of making Standard Design Ladies Slipper

1.5 Method of making Standard Design Ladies Long Heel Shoe

1.6 Method of making Standard Design Ladies Short Heel Shoe

1.7 Method of making Standard Design Ladies for Long Booty

2. Modelling and pattern Engineering of Traditional Shoe

2.1 Method of making Standard Design of Chappall

2.2 Method of making Standard Design of Medical Shoe

2.3 Method of making Standard Design of Boys School Shoe

2.4 Method of making Standard Design of Girls School Shoe

2.5 Method of making Standard Design of Children Ankle Shoe

2.6 Method of making Standard Design of Children Veldtschoen Sandal

2.7 Method of making Standard Design of Safety Shoe

3. Modelling and pattern Engineering of Miscellaneous Shoe

3.1 Method of making Standard Design of Sandal

3.2 Method of making Standard Design of Zip Bootee

3.3 Method of making Standard Design of Casual Shoe

3.4 Method of making Standard Design of Brogue Shoe

3.5 To create Fashion Shoe (Creative Work)

3.6 To create Fashion Boot (Creative Work)

3.7 To create Current Fashion designing of Shoe and Boot

Fwt-314 Design & Pattern Engineering - III

List of Practical:

1. To make a Standard Design Ladies Court Shoe and pattern making for manufacturing
2. To make a Standard Design Ladies Peep Toe Court Shoe and pattern making for manufacturing
3. To make a Standard Design Ladies Sandal and pattern making for manufacturing
4. To make a Standard Design Ladies Slipper and pattern making for manufacturing
5. To make a Standard Design Ladies Long Heel Shoe and pattern making for manufacturing
6. To make a Standard Design Ladies Short Heel Shoe and pattern making for manufacturing
7. To make a Standard Design Ladies for Long Booty and pattern making for manufacturing
8. To make a Standard Design of Chapal and pattern making for manufacturing
9. To make a Standard Design of Medical Shoe and pattern making for manufacturing
10. To make a Standard Design of Boys School Shoe and pattern making for manufacturing
11. To make a Standard Design of Girls School Shoe and pattern making for manufacturing
12. To make a Standard Design of Children Ankle Shoe and pattern making for manufacturing
13. To make a Standard Design of Children Veldtschoen Sandal and pattern making for manufacturing
14. To make a Standard Design of Safety Shoe and pattern making for manufacturing
15. To make a Standard Design of Sandal and pattern making for manufacturing
16. To make a Standard Design of Zip Bootee and pattern making for manufacturing
17. To make a Standard Design of Casual Shoe and pattern making for manufacturing
18. To make a Standard Design of Brogue Shoe and pattern making for manufacturing
19. To make a standard design of a Fashion Shoe (Creative Work) and pattern making for manufacturing
20. To make a standard design of a Fashion Boot (Creative Work) and pattern making for manufacturing
21. To make a standard design of a Current Fashion designing of Shoe and Boot and pattern making for manufacturing

Ftw-323 Footwear Production Technology - III

Total Contact Hours

		T	P	C
Theory	64			
Practical	192	2	3	3

Course Contents

1. Type of Shoe Construction **3Hrs**

1.1 Stuck on process

1.1.1 D.I.P

1.1.2 D.V.P

1.1.3 Stitch down process

1.1.4 Moccasin

1.1.5 build up

1.1.6 1P.U Poring

2. Bottom Manipulation and Prefabrication **2Hrs**

2.1 Sole Preparation

2.2 Insole Preparation

2.3 Preparation of socks

2.4 Controlling and supplying of material

3. Hand Lasting Tools **2Hrs**

3.1 Lasting – plier

3.2 Lasting Stand

3.3 Lasting Table

3.4 Adhesive

4. Lasting Machines **2Hrs**

4.1 Toe Lasting Machine

4.2 Waist and Heel Lasting Machine

4.3 Process and Benefits of Machine use

5. Checking of Last **2Hrs**

5.1 Size wise checking

5.2 Left Right checking

5.3 Checking of edges

5.4 Cleaning of Last

6. Mulling **2Hrs**

6.1 Mulling of upper

6.2 Water and heater

6.3 Steam advantages

7. Back Part Molding **2Hrs**

7.1 Counter Molding Machine

7.2 Back height control of shoe

7.3 Moulds and wiper plate according to the range

8. Insole Attaching **2Hrs**

8.1 By Nail

8.2 By rubber band

8.3 By cement

9. Fore Part Lasting **4Hrs**

9.1 Wrinkle free

9.2 Neat and Clean

9.3 Narrow Shape

9.4 Broad Shape

9.5 T – Shape

9.6 Proper allowance

9.7 Proper adhesive

9.8 Proper Toe band

9.9 Leather or Teflon toe band

10. Waist Lasting **2Hrs**

10.1 Proper allowance

10.2 Wrinkle free

10.3 Proper pulling

10.4 Proper pades

11. Heel Lasting **2Hrs**

11.1 Proper back height inside outside quarter

11.2 Proper quarter height

11.3 Round shape (like egg)

11.4 Wrinkle free

11.5 Proper wiper plates

11.6 Without damage heel band

12. Heat Setting **2Hrs**

12.1 Specified heat

12.2 Specified time

12.3 Vertical or horizontal

13. Scouring and Roughing **2Hrs**

13.1 Plain surface

13.2 No wrinkle on toe and heel portion

13.3 Smooth Roughing up to edges

13.4 No leather cutting

14.Cementing **3Hrs**

14.1 Upper wall marking for cement (if required)

14.2 Proper mixing of cement and dismodur

14.3 Upper cementing 1st coat

14.4 Upper cementing 2nd coat

14.5 Sole cementing 1st coat

14.6 Sole cementing 2nd coat (if required)

14.7 Smooth and proper cementing

15. Drying Cement **2Hrs**

15.1 Drying time (according to weather)

16. Reactivation **2Hrs**

16.1 Controlled temperature (according to material and weather)

16.2 Proper reactivation time

16.3 Proper thermostat system

17. Sole Attaching and Pressing **2Hrs**

17.1 Sole attaching with 10 second after reactivation

17.2 Proper positioning of sole attaching

17.3 Profile test

17.4 Proper pressure (according to the hardness of sole)

17.5 Proper pressing time

18. Sole Stitching **2Hrs**

18.1 Proper stitches per cm

18.2 Proper tension of thread

18.3 Stitching with guide

19. De Lasting **2Hrs**

19.1 Un lasting with machine

19.2 Manual UN lasting with stand

19.3 Last breaking and reshaping

20. Finishing and Packing **2Hrs**

Inserting Socks

20.1 Neat and clean socks

20.2 Proper socks cementing (by machine or by hand)

20.3 Proper insertion of socks

20.4 Pressing of sock

21. Touching up cleaning shoe **2Hrs**

21.1 No cement or chemical inside or out side

21.2 Proper insertion of socks

21.3 Pressing of socks

22. Edge Coloring **3Hrs**

23.1 Proper matching color

23.2 New and proper brush

23.3 Right edge coloring

23. Ironing (if required) **3Hrs**

23.1 Smooth surface of equipment

23.2 Controlled heat

23.3 Wrinkle removing with proper way

23.4 No extra ironing on shoe

24. Applying Binders **3Hrs**

24.1 Proper binder (according to leather i.e. SL – 1300 – 1200 etc.)

24.2 Smooth applying of binders (by machine or by hands)

24.3 Required time for buffing after binder used
24.4 Eglin spray for shining
24.5 Spray from proper distance
24.6 Multi gloss spray for sole and upper

25. Buffing **3Hrs**

25.1 Proper machine and motor RPM
25.2 Proper buffing brush
25.3 Proper ember paper for smoothness of brush

26. Quality Controlling **4Hrs**

26.1 Sample must be on the table
26.2 Scissor, gauge and back height tape (as quality control kit)
26.3 Upper material, color thickness
26.4 Stamp or label on inside or upper
26.5 No damage sole or over roughening
26.6 Thread and stitches
26.7 Reinforcement of toe puff and heel portion
26.8 No sports or impression on shoe
26.9 Height of quarter to be same and according to specification
26.10 No wrinkles on shoe
26.11 Checking each and every visible operation

27. Box Packing **2Hrs**

27.1 Box condition and size stamp etc.
27.2 Proper placing of shoes
27.3 Packing size wise
27.4 Paper to be used for wrapping of shoe (if required)

Recommended Books

1. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
2. R.G.Miller- Manual of Shoe Making, Clarks Limited
3. J.A.J Luijten, P.W.J Velden- Principles of Upper Leather Stitching, TNO Leather & Shoe Research Institute
4. www.shoetrades.com/Foot- Introduction to Modern Footwear Technology, (STP) SHOE TRADERAS PUBLI.
5. H.J.PATRIC, F.B.S.I –Footwear Technology Dictionary, (STP) SHOE TRADERAS PUBLI
6. Muazzam Mahmood Mansoor “Principles of Shoe Designing” Technical Education & Vocational Training Authority, Punjab

Ftw-323 Footwear Production Technology - III

INSTRUCTIONAL OBJECTIVES:

1. Type of Shoe Construction

1.1 Introduction of lasting technology and define lasting technology
1.2 Types of shoe construction
1.3 Explain D.I.P and D.V.P
1.4 Explain of stitch down process
1.5 Explain moccasin build up and 1P.U Poring

2. Bottom Manipulation and Prefabrication

2.1 How do manipulation and prefabrication
2.2 Explain method of sole preparation
2.3 How do prepare insole
2.4 Socks preparation, its different methods and its effects
2.5 Method of controlling and supplying of material

3. Hand Lasting Tools

3.1 What is hand lasting and its types
3.2 Basics of lasting-plier and its formula
3.3 How to make a lasting stand and a lasting table
3.4 Explain Adhesive and its usage

4. Lasting Machines

4.1 Introduction of lasting machines
4.2 How to run a toe lasting machine, its different parts and usage in shoe making

5. Checking of Last

5.1 Explain Size wise checking
5.2 Explain Left Right checking
5.3 Explain Checking of edges
5.4 Explain Cleaning of Last

6. Mulling

6.1 Explain Mulling of upper

6.2 Explain Water and heater
6.3 Explain Steam advantages

7. Back Part Moudling

7.1 Explain Counter Moudling Machine
7.2 Explain Back height control of shoe
7.3 ExplainMoulxds and wiper plate according to the range

8. Insole Attaching

8.1 Explain By Nail
8.2 Explain By rubber band
8.3 Explain By cement

9. Fore Part Lasting

9.1 Explain Wrinkle free
9.2 Explain Neat and Clean
9.3 Explain Narrow Shape
9.4 Explain Broad Shape
9.5 Explain T – Shape
9.6 Explain Proper allowance
9.7 Explain Proper adhesive
9.8 Explain Proper Toe band
9.9 Explain Leather or Teflon toe band

10. Waist Lasting

10.1 Explain Proper allowance
10.2 Explain Wrinkle free
10.3 Explain Proper pulling
10.4 Explain Proper pades

11. Heel Lasting

11.1 Explain Proper back height inside outside quarter
11.2 Explain Proper quarter height
11.3 Explain Round shape (like egg)
11.4 Explain Wrinkle free
11.5 Explain Proper wiper plates
11.6 Explain Without damage heel band

12. Heat Setting

12.1 Explain Specified heat
12.2 Explain Specified time
12.3 Explain Vertical or horizontal

13. Scouring and Roughing

13.1 Explain Plain surface
13.2 Explain No wrinkle on toe and heel portion
13.3 Explain Smooth Roughing up to edges
13.4 Explain No leather cutting

14. Cementing

14.1 Explain Upper wall marking for cement (if required)

14.2 Explain Proper mixing of cement and dismodur

14.3 Explain Upper cementing 1st coat

14.4 Explain Upper cementing 2nd coat

14.5 Explain Sole cementing 1st coat

14.6 Explain Sole cementing 2nd coat (if required)

14.7 Explain Smooth and proper cementing

15. Drying Cement

15.1 Explain Drying time (according to weather)

16. Reactivation

16.1 Explain Controlled temperature (according to material and weather)

16.2 Explain Proper reactivation time

16.3 Explain Proper thermostat system

17. Sole Attaching and Pressing

17.1 Explain Sole attaching with 10 second after reactivation

17.2 Explain Proper positioning of sole attaching

17.3 Explain Profile test

17.4 Explain Proper pressure (according to the hardness of sole)

17.5 Explain Proper pressing time

18. Sole Stitching

18.1 Explain Proper stitches per cm

18.2 Explain Proper tension of thread

18.3 Explain Stitching with guide

19. De Lasting

19.1 Explain Un lasting with machine

19.2 Explain Manual of UN lasting with stand

19.3 Explain Last breaking and reshaping

20. Finishing and Packing

Inserting Socks

20.1 Explain Neat and clean socks

20.2 Explain Proper socks cementing (by machine or by hand)

20.3 Explain Proper insertion of socks

20.4 Explain Pressing of sock

21. Touching up cleaning shoe

21.1 Explain No cement or chemical inside or out side

21.2 Explain Proper insertion of socks

21.3 Explain Pressing of socks

22. Edge Coloring

23.1 Explain Proper matching color

23.2 Explain New and proper brush

23.3 Explain Right edge coloring

23. Ironing (if required)

23.1 Explain Smooth surface of equipment

23.2 Explain Controlled heat

23.3 Explain Wrinkle removing with proper way

23.4 Explain No extra ironing on shoe

24. Applying Binders

24.1 Explain Proper binder (according to leather i.e. SL – 1300 – 1200 etc.)
24.2 Explain Smooth applying of binders (by machine or by hands)
24.3 Explain Required time for buffing after binder used
24.4 Explain Eglin spray for shining
24.5 Explain Spray from proper distance
24.6 Explain Multi gloss spray for sole and upper

25. Buffing

25.1 Explain Proper machine and motor RPM
25.2 Explain Proper buffing brush
25.3 Explain Proper ember paper for smoothness of brush

26. Quality Controlling

26.1 Explain Sample must be on the table
26.2 Explain Scissor, gauge and back height tape (as quality control kit)
26.3 Explain Upper material, color thickness
26.4 Explain Stamp or label on inside or upper
26.5 Explain No damage sole or over roughening
26.6 Explain Thread and stitches
26.7 Explain Reinforcement of toe puff and heel portion
26.8 Explain No sports or impression on shoe
26.9 Explain Height of quarter to be same and according to specification
26.10 Maintain wrinkles free shoe
26.11 Explain Checking each and every visible operation

27. Box Packing

27.1 Explain Box condition and size stamp etc.
27.2 Explain Proper placing of shoes
27.3 Explain Packing size wise
27.4 Explain how a Paper to be used for wrapping of shoe (if required)

Ftw-323 Footwear Production Technology – III

List of Practical:

1. To make the construction by stuck on process with D.I.P, D.V.P
2. To make I.P.U poring by machine
3. To make the toe Lasting by machine of Shoe and Boot
4. To make the heel Lasting by machine of Shoe and Boot
5. To make the hand Lasting of waist Shoe and Boot
6. To make the sole attaching by machine of shoe and boot
7. To make the sole pressing by machine of shoe and boot
8. To stich the sole
9. To make the insole attaching by machine of shoe and boot
10. To make the practical of heat setting
11. To scour and rough the extra material of shoe and boot
12. To make the cementing of upper and sole with first and second coat
13. To spray the finishes on the shoe and boot
14. To insert the socks into shoe and boot
15. To colour the edges of the sole

16. To iron on the shoe and boot
17. To apply the binders
18. To buff with machine and brush
19. To take the steps of quality control
20. To pack the manufactured footwear in the box

Ftw-332 Footwear CAD/CAM Technology

Total Contact Hours

Theory	32	T	P	C
Practical	96	1	3	2

COURSE CONTENTS

Shoe Grading with CAD / CAM Technology

1. Introduction of CAD / CAM 6Hrs

1.1 Introduction of CAD / CAM
1.2 Importance of CAD/CAM
1.3 Function of Computer in CAD/CAM
1.4 Role of CAD/CAM Technology in Footwear
1.5 Designing in CAD/CAM

2. Advance Grading and Pattern Engineering in CAD / CAM System 6Hrs

2.1 Introduction and Importance of CAD / CAM Grading
2.2 Role of Grading in Footwear
2.3 Basic principles of CAD/ CAM Grading
2.4 Introduction of Sizes and sizing system
2.5 Advantages of CAD/ CAM Grading

3. Digitizing and measurements of Master Standards 12Hrs

3.1 What is digitizing?
3.2 Digitizing/ Scanning of Bottom and upper components
3.3 Digitizing/ Scanning of Oxford Boot
3.4 Digitizing/ Scanning of Derby Boot
3.5 Digitizing/ Scanning of Oxford Shoe
3.6 Digitizing/ Scanning of Derby Shoe
3.7 Digitizing/ Scanning of Court Shoe
3.8 Digitizing/ Scanning of High Leg Boot

4. Grading of Upper components in Diagram 8Hrs

4.1 Grading in CAM Technology

4.2 Grading of Bottom components

4.3 CAM grading of marking components

4.4 CAM grading of cutting patterns for production

Recommended Books

1. J.A.J Luijten, P.W.J Velden- Principles of Shoe DesigningVol.1 & 2, TNO Leather & Shoe Research Institute
2. J.A.J Luijten, P.W.J Velden-Design, Pattern Engineering and Grading of Footwear Vol.1 & 2, TNO Leather & Shoe Research Institute
3. J.S Harding "The Boot and Shoe Industry" SIR ISAAC PITMAN & SONS LTD, New York
4. Muazzam Mahmood Mansoor "Pattern Engineering of Shoe Components" Technical Education & Vocational Training Authority, Punjab

Ftw-332 Footwear CAD/CAM Technology

Instructional objectives:

1.Introduction of CAD / CAM

1.1 To Introduce of CAD / CAM
1.2 Explain the Importance of CAD/CAM
1.3 Explain the Function of Computer in CAD/CAM
1.4 Explain the Role of CAD/CAM Technology in Footwear
1.5 Explain the Designing in CAD/CAM

2. Shoe Grading with CAD / CAM Technology

2.1 Introduction to Grading and Pattern Engineering in CAD/CAM system
2.2 Different aspects and importance of CAD/CAM Grading
2.3 How to use formulation in CAD/CAM Grading, its basic principles
2.4 Introduction of sizes and sizing system

2.5 Advantages of CAD/CAM Grading

3. Digitizing and measurements of Master Standards

3.1 Method of Digitizing and measurement of master standards
3.2 How to Digitize the standard of Oxford Boot
3.3 How to Digitize the standard of Derby Boot
3.4 How to Digitize the standard of Oxford Shoe
3.5 How to Digitize the standard of Derby Shoe
3.6 How to Digitize the standard of Court Shoe
3.7 How to Digitize the standard of High Leg Boot

4. Grading of upper components

4.1 Grading with CAM Technology French and English

- Grading of Shoe upper components
- Grading of Shoe bottom

4.2 CAM Grading of marking components

4.3 CAM Grading of cutting patterns for production

Ftw-332 Footwear CAD/CAM Technology

List of Practical:

1. To introduce the basic role of computer in CAD/CAM Technology
2. To introduce the software of CAD/CAM Technology
3. To take the Last Forming for grading
4. To Digitize the components of shoe, boot, sandal and slippers

5. To make Digitizing of Bottom and upper components
6. To make Digitizing of Oxford Boot
7. To make Digitizing of Derby Boot
8. To make Digitizing of Oxford Shoe
9. To make Digitizing of Derby Shoe
10. To make Digitizing of Court Shoe
11. To make Digitizing of High Leg Boot
12. To make scanning of Bottom and upper components
13. To make scanning of Oxford Boot
14. To make scanning of Derby Boot
15. To make scanning of Oxford Shoe
16. To make scanning of Derby Shoe
17. To make scanning of Court Shoe
18. To make scanning of High Leg Boot
19. To measure the master standard of the components of shoe, boot, sandal and slippers
20. To Modify the components of shoe, boot, sandal and slippers
21. To make the Patterns by using CAD/CAM software
22. To make the Marking by using CAD/CAM software
23. To make CAD/CAM grading of upper patterns
24. To make CAD/CAM grading of sole patterns
25. To make CAD/CAM grading of insole patterns
26. To make CAD/CAM grading of lining patterns
27. Complete CAD/CAM Grading in Footwear Patterns

Ftw-344 Footwear Materials-III

Total Contact Hours

Theory	96	T	P	C
Practical	96	3	3	4

(Part-A)

1. Introduction of Sole& Insole **12Hrs**

1.1 Introduction of Sole
1.2 Types of Sole
1.3 Sole designing
1.4 Introduction of Insole
1.5 Insole designing
1.6 Sock lining

2. Soling Materials **20Hrs**

4.1 Sole leather

4.2 Rubber soling materials

4.3 .Polyvinylchloride (PVC)

4.4 Thermo-plastic rubber (TPR)

4.5 Polyurethane soling materials (PU)

4.6 Microcellular rubber

4.7 Ethylene vinyl acetate (EVA)

4.8 Miscellaneous soling materials

3. Insole materials **16Hrs**

3.1 Insole leather
3.2 Leather board
3.3 Cellulose board
3.4 Non-woven materials
3.5 Miscellaneous insole materials

(Part-B)

4. Adhesives **16Hrs**

4.1 General Principles and Methods of Adhesives
4.2 The Principal Adhesive
4.3 Processes Using Adhesive
4.4 Types of Adhesive
4.5 Mechanisms of Adhesion
4.6 Applications of Adhesive

5. Shoe Finishes, Cleaners and Dressings **10Hrs**

5.1 Bottom Finishes

5.2 Sole Finishes

5.3 Heel Finishes

5.4 Edge Finishes

5.5 Special Dressings

6. Grindery **12Hrs**

6.1 Nails, Tacks and Rivets
6.2 Manufacture of Nails, Tacks and Rivets
6.3 Types of Tacks
6.4 Sole Reinforcement
6.5 Wires and its manufacture
6.6 Types of Wires
6.7 Non-Metallic Fibre Fasteners

5. Miscellaneous Soling materials used in shoe manufacturing **10 Hrs**

6.1 Toe Puff and Stiffeners
6.2 Bottom Filling
6.3 Platform Materials
6.4 Shanks
6.5 Heels
6.6 Sewing threads

Recommended Books

1. By Dick Anzeic - Practical Pattern Making, (STP) SHOE TRADERAS PUBLI.
2. PrabirDey- Last Modeling Part 1, 2 and 3, RSLI, INDIA
3. J.A.J Luijten P.W.J Velden – Principles of Shoe Designing, TNO Leather & Shoe Research Institute
4. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York
5. Muazzam Mahmood Mansoor “Principles of Shoe Designing” Technical Education & Vocational Training Authority, Punjab

Ftw-344 Footwear Materials-II

INSTRUCTIONAL OBJECTIVES:

1. Introduction of Sole & Insole

1.1 Introduce of Sole
1.2 Define the Types of Sole
1.3 To Explain Sole designing
1.4 To Explain Introduction of Insole
1.5 To Explain Insole designing
1.6 To Explain Sock lining

2. Soling Materials

2.1 To ExplainSole leather

2.2 Manufacturing process of Rubber soling materials

2.3 Introduce of Polyvinylchloride (PVC)

2.4 Manufacturing process of Polyvinylchloride (PVC)

2.5 Introduce of Polyvinylchloride (PVC)

2.6 Introduce of Thermo-plastic rubber (TPR)

2.7 Manufacturing process ofThermo-plastic rubber (TPR)

2.8 Introduce of Polyurethane soling materials (PU)

2.9 Manufacturing process ofPolyurethane soling materials (PU)

2.10 Manufacturing process of Microcellular rubber

2.11 Introduce of Microcellular rubber

2.12 Introduce of and Manufacturing process ofEthylene vinyl acetate (EVA)

2.13 Miscellaneous soling materials

3. Insole materials

3.1 To introduce and aware of manufacturing process of the Insole leather
3.2 To introduce and aware of manufacturing process ofLeather board
3.3 To introduce and aware of manufacturing process ofCellulose board
3.4 To introduce and aware of manufacturing process ofNon-woven materials
3.5 To introduce and aware of manufacturing process ofMiscellaneous insole materials

4. Adhesives

4.1 To introduce the General Principles and Methods of Adhesives
4.2 To introduce and aware of manufacturing process ofThe Principal Adhesive
4.3 Explain the Processes Using Adhesive
4.4 Explain the Types of Adhesive
4.5 Explain the Mechanisms of Adhesion
4.6 Explain Applications of Adhesive

5. Shoe Finishes, Cleaners and Dressings

5.1 To introduce and aware of manufacturing process of Bottom Finishes

5.2 To introduce and aware of manufacturing process of Sole Finishes

5.3 To introduce and aware of manufacturing process of Heel Finishes

5.4 To introduce and aware of manufacturing process of Edge Finishes

5.5 To introduce and aware of manufacturing process of Special Dressings

6 Grindery

6.1 To Introduce and Explain the function of Nails, Tacks and Rivets
6.2 To Introduce and Explain the function of Manufacture of Nails, Tacks and Rivets
6.3 To Introduce and Explain the function of Types of Tacks
6.4 To Introduce and Explain the function of Sole Reinforcement
6.5 To Introduce and Explain the function of Wires and its manufacture
6.6 To Introduce and Explain the function of Types of Wires
6.7 To Introduce and Explain the function of Non-Metallic Fibre Fasteners

7 Miscellaneous Soling materials used in shoe manufacturing

7.1 To Introduce and Explain the function of Toe Puff and Stiffeners
7.2 To Introduce and Explain the function of Bottom Filling
7.3 To Introduce and Explain the function of Platform Materials
7.4 To Introduce and Explain the function of Shanks
7.5 To Introduce and Explain the function of Heels
7.6 To Introduce and Explain the function of Sewing threads

Ftw-344 Footwear Materials-II

List of Practical:

1. To do the whole Method of Insole Designing
2. To do the whole Method of Sock lining
3. To Sketch of different Styles of Sole
4. To make practice of Sole Material Checking
5. To make the Sole designing of geometrical method in different shapes
6. To make the insole designing of geometrical method in different shapes
7. To know the manufacturing process of sole leather
8. To know the manufacturing process of rubber soling material

9. To know the manufacturing process of Polyvinylchloride (PVC)
10. To know the manufacturing process of Thermo-plastic rubber (TPR)
11. To know the manufacturing process of Polyurethane soling materials (PU)
12. To know the manufacturing process of Microcellular rubber
13. To know the manufacturing process of Ethylene vinyl acetate (EVA)
14. To know the manufacturing process of Cellulose board
15. To know the manufacturing process of Non-woven materials
16. To know the manufacturing process of Insole leather
17. To identify the different materials
18. To use the adhesives on different materials
19. To use the shoe finishes on shoe, boot, sandal and slippers
20. To use the shoe cleaners on shoe, boot, sandal and slippers
21. To use the shoe dressings on shoe, boot, sandal and slippers
22. To use the shoe finishes on shoe, boot, sandal and slippers
23. To use the grindery on shoe, boot, sandal and slippers
24. To use the toe puff and stiffeners in shoe, boot, sandal and slippers
25. To use the bottom filling in shoe, boot, sandal and slippers
26. To use the shanks on shoe and boot
27. To use the heel in shoe and boot
28. To use the sewing thread in shoe, boot, sandal and slippers
29. Direct Injection Sole Molding Machine method

Ftw-354 Leather Goods Manufacturing & Pattern Making

Total Contact Hours

		T	P	C
Theory	96			
Practical	96	3	3	4

COURSE CONTENTS

(Part-A)

1. Principles of leather goods making / designing **20Hrs**

1.1 Introduction to crafts / Leather goods
1.2 Basic leather technology
1.3 Leather materials goods
1.4 General requirements of crafts
1.5 Miscellaneous materials used in crafts making
1.6 Machinery and tools required for crafts making
1.7 Machine maintenance

2 Pattern engineering of crafts components **28 Hrs**

4.1 Drafting of different types of Leather goods especially in

- Wallet
- Key Chain
- Ladies Purse
- Belt
- Laptop bag
- Mobile Cover
- File Cover
- Cap
- Glasses Cover
- Gloves
- Hand bag
- Leather Socks

2.2 Modeling of different patterns
2.3 Sizing of different components
2.4 Modeling and pattern engineering of different crafts components

(Part-B)

3 Principles of leather goods cutting and stitching **16 Hrs**

3.1 Principle of cutting
3.2 Different cutting tools and methods
3.3 Principles of goods stitching
3.4 Types and requirements of stitching
3.5 Make cutting patterns (Box Board, X-Ray sheet & tin template)
3.6 Essential operations before packing

4 Quality control and cost management **16Hrs**

4.1 Introduction to quality control
4.2 Implementation of quality standards
4.3 Stage wise quality checks
4.5 Casting procedures
4.6 Health and safety practices

5 Applied mathematics and general calculations 16Hrs

5.1 Units of measurements and measuring tools

5.2 Essential mathematical calculations

Recommended Books

1. By Dick Anzeic - Practical Pattern Making, (STP) SHOE TRADERAS PUBLI.
2. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
3. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of Footwear, TNO Leather & Shoe Research Institute
4. R.G.Miller- Manual of Shoe Making, Clarks Limited
5. J.S Harding “The Boot and Shoe Industry” SIR ISAAC PITMAN & SONS LTD, New York

Ftw-354 Leather Goods Manufacturing & Pattern Making

Instructional objectives:

1. Principles of leather goods making / designing

1.1 Introduction leather goods
1.2 Define goods and crafts
1.3 Introduction of basic leather technology
1.4 Required material for crafts
1.5 Miscellaneous materials used in craft making
1.6 Machinery and tools required for craft making
1.7 How to maintain a machine

2. Pattern Engineering of craft components

2.1 How to draw sketches

2.2 Method to draw a design and craft

4.2 Draw model of different kinds of pattern components of

- Wallet
- Key Chain
- Ladies Purse
- Belt
- Laptop bag
- Mobile Cover
- File Cover
- Cap
- Glasses Cover
- Gloves
- Hand bag
- Leather Socks

2.3

2.4 Modeling and pattern engineering of different crafts components

3. Principles of leather goods cutting and stitching

3.1 Introduction of leather goods cutting and stitching

3.2 Principle of cutting leather goods

3.3 Introduction of different cutting tools and method

3.4 How to stitch goods and its methods

3.5 Types and requirements of stitching

3.6 Make cutting patterns (Box Board, X-Ray sheet & Tin template)

4. Quality control and cost management

4.1 How to control the quality

4.2 Maintain the quality standards

4.3 Step by step quality checking

4.4 Introduction to costing, its procedures and check and balance

4.5 Aware about health and safety practice

5. Applied Mathematics and general calculations

5.1 Rules of calculation

5.2 Measurements, its method and formulation

5.3 Usage of measuring tools and essential mathematical calculation

Ftw-354 Leather Goods Manufacturing & Pattern Making

List of Practical:

- To make the Sketching and standard making of
- To make the Sketching and standard making of Wallet
- To make the Sketching and standard making of Key chain
- To make the Sketching and standard making of Ladies Purse
- To make the Sketching and standard making of Belt
- To make the Sketching and standard making of Laptop bag
- To make the Sketching and standard making of Mobile Cover
- To make the Sketching and standard making of File Cover
- To make the Sketching and standard making of Cap
- To make the Sketching and standard making of Glasses Cover
- To make the Sketching and standard making of Gloves
- To make the Sketching and standard making of Hand bag
- To make the Sketching and standard making of Leather Socks
- To make the Standard Making by geometrical method of all leather goods
- To make the Upper Patterns of all leather goods
- To make the Lining Pattern of all leather goods
- To manufacture the Wallet
- To manufacture the Key chain
- To manufacture the Ladies Purse
- To manufacture the Belt
- To manufacture the Laptop bag
- To manufacture the Mobile Cover
- To manufacture the File Cover
- To manufacture the Cap
- To manufacture the Glasses Cover
- To manufacture the Gloves
- To manufacture the Hand bag
- To manufacture the Leather Socks

Ftw-362 Quality Control & Material Testing

Total Contact Hours				
Theory	32	T	P	C
Practical	96	1	3	2

COURSE CONTENTS

1. Introduction to Quality **6Hrs**

1.1 What is Quality

1.2 Applications of Quality

1.3 Quality Control and Quality Assurance

1.4 Quality Standards and specifications

1.5 Quality Management System(ISO-9000,ISO-14000, ISO-18000

2 International Test Methods and Their Applications **12Hrs**

2.1 Official Test Methods (CE, SATRA,BSI, SLTC, SDC)

2.2 Standard Values (ISO,CE, SATRA,BSI, SLTC, SDC)

2.3 Footwear Standards(Performance and Restriction)

2.4 Testing of Upper Materials

2.5 Testing of Bottom Materials

3 Materials and Other Auxiliaries **8Hrs**

3.1 Types of Materials

3.2 Availability and Comparison

3.3 Suitability in Footwear

3.4 Upper Types

3.5 Bottom Types

4 Quality Assurance Checks **6Hrs**

4.1 Size Measurement Checks

4.2 Needle Detection Check

4.3 Stitch Density Check

4.4 Marking Checks

4.5 Rub Tests

4.6 Friction Tests

Recommended Books

6. By Dick Anzeic - Practical Pattern Making, (STP) SHOE TRADERAS PUBLI.
7. H.J.PATRIC, F.B.S.I - Modern Pattern Cutting and Design, (STP) SHOE TRADERAS PUBLI
8. J.A.J Luijten, P.W.J Velden- Design, Pattern Engineering and Grading of Footwear, TNO Leather & Shoe Research Institute
9. R.G.Miller- Manual of Shoe Making, Clarks Limited

Ftw-362 Quality Control & Material Testing

Instructional objectives:

1. Introduction to Quality

1.1 Explain Quality control

1.2 Explain the Applications of Quality

1.3 Explain the difference between Quality Control and Quality Assurance

1.4 Explain the Quality Standards and specifications

1.5 Explain the Quality Management System(ISO-9000,ISO-14000, ISO-18000

2 International Test Methods and Their Applications

2.1 Methods of Physical and Chemical Testing according to CE, SATRA,BSI, SLTC, SDC

2.2 Check the Standard Values and specifications of the tests

2.3 Check the Footwear Standards(Performance and Restriction) according to CE, SATRA,BSI, SLTC, SDC

2.4 To Teach the Testing of all materials used in footwear

2.5 To teach the Testing of Upper Materials

2.6 To teach the Testing of Bottom Materials

3 **Materials and Other Auxiliaries**

3.1 Explain the Types of Materials

3.2 Explain Availability and Comparison

3.3 Explain Suitability in Footwear

3.4 Explain Upper Types

3.5 Explain Bottom Types

4 **Quality Assurance Checks**

4.1 Checking and testing of Size Measurement

4.2 Checking and testingNeedle Detection

4.3 Checking and testing Stitch Density

4.4 Checking and testing Marking

4.5 Checking and testing Rub

4.6 Checking and testing Friction

Ftw-362 Quality Control & Material Testing

List of Practical:

1. Physical and chemical Testing of leather
2. Physical and chemical Testing of leather board
3. Physical and chemical Testing of textile

4. Physical and chemical Testing of sole leather
5. Physical and chemical Testing of rubber soloing material
6. Physical and chemical Testing of Polyvinylchloride (PVC)
7. Physical and chemical Testing of Thermo-plastic rubber (TPR)
8. Physical and chemical Testing of Polyurethane soling materials (PU)
9. Physical and chemical Testing of Microcellular rubber
10. Physical and chemical Testing of Ethylene vinyl acetate (EVA)
11. Physical and chemical Testing of Insole leather
12. Physical and chemical Testing of Cellulose board
13. Physical and chemical Testing of Non-woven materials
14. Physical and chemical Testing of Adhesives
15. Physical and chemical Testing of Finishes, Cleaners and Dressings
16. Physical and chemical Testing of heels

Ftw-371 Marketing & Brand Management

Total Contact Hours

Theory	32	T	P	C
Practical	00	1	0	1

COURSE CONTENTS

1. Introduction to Marketing **4Hrs**

1.2 Nature Scope and Definition of Marketing
1.3 Importance of Marketing
1.4 External Macro environment External Microenvironment
1.5 Definition and need of Marketing Information system

1.6 Scope of Marketing research

2. Marketing Planning **4Hrs**

2.1 Managing a Marketing system.
2.2 Nature and scope of planning
2.3 Strategic Company Planning
2.4 Strategic Marketing Planning Materials and Other Auxiliaries

3. Marketing Segmentation **4Hrs**

3.1 Nature of Market Segmentation
3.2 Bases for Market Segmentation
3.3 Target – Market Strategies
3.4 Forecasting Market Demand

4. Basic Methods of Setting Price **4Hrs**

4.1 Meaning and importance of pricing objectives
4.2 Prices Based on a Balance between supply and Demand
4.3 Prices set in relation to Market
4.4 pricing strategies and policies
4.5 psychological pricing

5. Promotion Strategic **4Hrs**

5.1 Nature and importance of Sales Promotion strategic
5.2 Sales promotion methods
5.3 Consumer promotion techniques
5.4 Nature and importance of personal selling
5.5 management of Sales Promotion
5.6 Nature and objectives of Advertising
5.7 Development of Advertising and Campaign
5.8 organizing for Advertising Publicity and Public Relations

6. Brand and Brand Management **12Hrs**

6.1 Introduction of Brands and Brand Management
6.2 Brand Orientation
6.3 Brand Positioning and Values
6.4 Choosing Brand Elements to Build Brand Equity
6.5 Designing Marketing Programs to Build Brand Equity
6.6 Developing Brand Equity Measurement and Management System
6.7 Measuring Sources of Brand Equity
6.8 Design and Implementing Branding Strategies
6.9 Introducing and Naming New Products and Brand Extensions
6.10 Managing Brands over Geographical Boundaries and Market Segments

Recommended Books

- “Positioning” By Al Ries& Jack Trout
- “Content Rules” By Ann Handley & C.C. Chapman
- “Influence: The Psychology of Persuasion” By Robert Cialdini
- “Web Analytics” By Avinash Kaushik
- “Permission Marketing” By Seth Godin

- “Selling the Invisible: A Field Guide to Modern Marketing” By Harry Beckwith
- “Never Eat Alone” By Keith Ferrazzi

Ftw-371 Marketing & Brand Management

Instructional objectives:

1. Introduction to Marketing

1.1 To Define the Nature Scope and Definition of Marketing

1.2 Explain the Importance of Marketing

1.3 Explain the External Macro environment External Microenvironment
1.4 Explain the Definition and need of Marketing Information system
1.5 Explain the Scope of Marketing research

2. Marketing Planning

2.1 To Explain Managing a Marketing system.
2.2 To Explain Nature and scope of planning
2.3 To Explain Strategic Company Planning
2.4 To Explain Strategic Marketing Planning Materials and Other Auxiliaries

3. Marketing Segmentation

3.1 To Explain Nature of Market Segmentation
3.2 To Explain Bases for Market Segmentation
3.3 To Explain Target – Market Strategies
3.4 To Explain Forecasting Market Demand

4. Basic Methods of Setting Price

4.1 To Explain Meaning and importance of pricing objectives
4.2 To Explain Prices Based on a Balance between supply and Demand
4.3 To Explain Prices set in relation to Market
4.4 To Explain pricing strategies and policies
4.5 To Explain psychological pricing

5. Promotion Strategic

5.1 To Explain Nature and importance of Sales Promotion strategic
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5.4 To Explain Nature and importance of personal selling
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6. Brand and Brand Management

6.1 To Explain Introduction of Brands and Brand Management
6.2 To Explain Brand Orientation
6.3 To Explain Brand Positioning and Values
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6.5 To Explain Designing Marketing Programs to Build Brand Equity
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6.10 To Explain Managing Brands over Geographical Boundaries and Market Segments

Ftw-382 Final Design Project-III

1. The Design Project & Viva

- As an essential part of DAE Footwear course, each student will have to complete a project comprising of creative current fashion shoe or boot from2 Gents and 2 Ladies complete shoe or boot including the following: -

1. Making of Patterns
2. Making of Upper standard
3. Making of Upper lining standard
4. Making of lining pattern
5. Pull over of each style
6. Lasting
7. Sole attaching
8. Finishing
9. Packing
10. Making of Patterns
11. Making of Upper standard
12. Making of Upper lining standard
13. Making of lining pattern
14. Pull over of each style

2. **Six design projects Ladies / Gents (*)**

Creative Collection of modern day Footwear requirements regarding fashion aspect, Shoe cosmetics etc.

- Making of Patterns
- Making of Upper standard
- Making of Upper lining standard
- Making of lining pattern
- Pull over of each style

The design project will be assessed / evaluated by internal examiner and vetted by external examiner during project viva.