3 YEARS
DIPLOMA OF ASSOCIATE ENGINEER
(SOFTWARE)

CONTENTS

3 YEARS DAE (SOFTWARE)

Scheme of Studies

First Year

Code #	Subject	Credit Hours		
First Year		Th	Pr	C
Gen 111	Islamiat & Pakistan Studies-I	1	0	1
Eng 112	English	2	0	2
Math 123	Applied Mathematics – I	3	0	3
Phy 132	Applied Physics	1	3	2
Ch 132	Applied Chemistry	1	3	2
OHSE 111	Occupational Health, Safety & Environment	1	0	1
DSE 111	MS-Office 2016	1	3	2
DSE 112	HTML5 and CSS3	1	3	2
DSE 113	Introduction to PHP	1	3	2
DSE 114	Database Programming with MySQL	1	3	2
DSE 116	SEO	1	3	2
TOTAL		**14**	**21**	**21**

Second Year
Duration: 12 Months Total Marks: 1100

Code #	Subject	Credit Hours		
Second Year		Th	Pr	C
Gen 211	Islamiat & Pakistan Studies-II	1	0	1
Math 233	Applied Mathematics – II	3	0	3
Mgm 211	Business Communication	1	0	1
DSE 211	Introduction to Java	1	3	2
DSE 212	Introduction to OOP	1	3	2
DSE 213	Android Development	1	3	2
DSE 214	Web Application Development with PHP	1	3	2
DSE 215	Introduction to CMS (WordPress)	1	3	2
DSE 216	Web Development with Code Igniter	1	3	2
TOTAL		**11**	**18**	**17**

Third Year
Duration: 12 Months Total Marks: 950

Code #	Subject	Credit Hours		
Third Year		Th	Pr	C
Gen 311	Islamiat & Pakistan studies-III	1	0	1
Eng 311	Technical Report Writing	1	0	1
Mgt 331	Management	1	0	1
DSE 311	Programming in C#	1	3	2
DSE 312	Web Programming in ASP.NET	1	3	2
DSE 313	Database Development in Microsoft SQL Server	1	3	2
DSE 314	Oracle ERP Essentials	1	3	2
DSE 315	Oracle ERP Financials	1	3	2
DSE 316	Oracle ERP Supply chain	1	3	2
TOTAL		**9**	**18**	**15**

First Year

Duration: 12 Months Total Marks: 1000

Course Title: Islamiat & Pakistan Studies

موضوعات حصہ اول اسلامیات — کل وقت: 20 گھنٹے

کتاب و سنت

(ا) قرآن مجید

-1 تعارف قرآن مجید 2- نزول قرآن 3- مکی و مدنی سورتوں کی خصوصیات 4- وحی کی اقسام 5- پندرہ منتخب آیات مع ترجمہ

1.1 تنالو البر حتی تنفقوا مما تحبون
1.2 واعتصموا بحبل اللّٰہ جمیعا" ولا تفرقو
1.3 ولا یجرمنکم شنان قوم علی ان لا تعدلوا
1.4 ان اللّٰہ یامرکم ان تودوا الامانات الی اھلھا
1.5 ان اللّٰہ یامر بالعدل والاحسان
1.6 ان الصلوتہ تنھی عن الفحشاء والمنکر
1.7 لقد کان لکم فی رسول اللّٰہ سوۃ حسنتہ
1.8 ان اکرمکم عند اللّٰہ اتقاکم
1.9 وما آتاکم الرسول فخرزو ومانھی عنھوانتھوا
1.10 ولوفو بالعھد
1.11 وماشروھن بالمعروف
1.12 یمحق اللّٰہ الربوویر بی الصمدقات
1.13 واصبر علی ما اصابک
1.14 وقولو قولا سدیدا
1.15 ان الدین عند اللّٰہ السلام

(ب) سنت

-1 سنت کی اہمیت
-2 دس منتخب احادیث مع ترجمہ و تشریح

1- انما الاعمال بالنیات

2- انما بعثت لاتمم مکارم الاخلاق

3- لا یومن احدکم حتی یحب لاخیہ ما یحب لنفسہ

4- المسلم من سلم المسلمون من لسانہ ویدہ

5- قل امنت باللہ ثم استقم

6- خیرکم خیرکم لاھلہ

7- سباب المسلم فسوق وقتالہ کفر

8- المومن اخو المومن

9- کل المسلم علی المسلم حرام دمہ ومالہ وعرضہ

10- اٰیۃ المنافق ثلاث اذا حدث کذب واذا وعد اخلف واذا اؤتمن خان

دین اسلام

2.1 اسلام کے بنیادی مقاصد کی وضاحت اور انسان کی انفرادی و اجتماعی زندگی پر ان کے اثرات

1- توحید

2- رسالت

3- آخرت

4- ملائکہ

5- آسمانی کتب

2.2 عبادات

1- نماز 2- روزہ 3- حج 4- زکوٰۃ

مندرجہ بالا عبادات کی اہمیت و فضیلت، حکمتیں اور انسان کی انفرادی و معاشرتی زندگی پر ان کے اثرات

تدریسی مقاصد

۱۔ قرآن مجید

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

خصوصی مقصد: 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 دس 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 نبویہ

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

خصوصی مقصد: احادیث کا ترجمہ و تشریح کر سکے

رسول اللہ ﷺ کے اسوۂ حسنہ کا [illegible] سکے

دین اسلام

عمومی مقاصد: دین اسلام کے بنیادی مقاصد اور عبادات کے بارے میں جان سکے اور بیان کر سکے

خصوصی مقاصد

لفظ دین اسلام کے لغوی اور اصطلاحی معنی بیان کر سکے

اسلام کے بنیادی مقاصد کی اہمیت بیان کر سکے

اسلام کے بنیادی مقاصد سے انسان کی انفرادی و اجتماعی زندگی پر پڑنے والے اثرات بیان کر سکے

عبادت کے لغوی و اصطلاحی معنی بیان کر سکے

عقیدے اور عبادت کا فرق بیان کر سکے

عبادات (نماز، روزہ، حج، زکوٰۃ) کے فوری، اخلاقی اور انسانی زندگی پر ان کی اثرات بیان کر سکے

اسلامی مقاصد و عبادات کے مطابق اپنی زندگی ڈھال کر ایک اچھا مسلمان بن سکے

(غیر مسلم طلباء کے لئے)

حصہ دوم مطالعہ پاکستان

موضوعات

کل وقت۔ 20 گھنٹے

اخلاقیات کی تعریف اور اہمیت

اخلاقیات کا معیار (قانون، عقل، الہامی کتب)

مندرجہ ذیل اخلاق کی وضاحت

- ☆ دیانت داری
- ☆ وعدہ داری
- ☆ نظم و ضبط
- ☆ راست گوئی
- ☆ صبر و استقلال
- ☆ حوصلہ مندی
- ☆ وقت کی پابندی
- ☆ صفائی
- ☆ ایثار
- ☆ باہمی احترام
- ☆ مصلحت

نصاب اخلاقیات (اسلامی اردو)

تدریسی مقاصد

عمومی مقاصد: اعلیٰ اخلاق کی وجہ سے فکری ترقی میں مکمل قدر نافذ کرنے

خصوصی مقاصد: جناب اس علم سے اس قابل ہو گا 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
- ☆ راست بازی کی اہمیت بیان کر سکے
- ☆ وفاداری کی اہمیت بیان کر سکے
- ☆ نظم و ضبط 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 اعتبار سے حسن کارکردگی کو بیان کر سکے
- ☆ مصلحت کے فوائد بیان کر سکے

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 و جسمانی غلامی کے نقصانات

☆ نظریہ پاکستان

قیام پاکستان کی اساس (دین اسلام) قیام پاکستان کی غرض و غایت نظریہ پاکستان کی وضاحت۔ نظریہ پاکستان اور 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 تبلیغی خدمات سید احمد شہید کی تحریک مجاہدین

☆ تعلیمی تحریکیں

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

مطالعہ پاکستان (حصہ دوئم)

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 کے بیان کر سکے

☆ جسمانی غلامی قومی سطح پر نقصانات بیان کر سکے

نظریہ پاکستان

عمومی مقصد:

نظریہ پاکستان (دین اسلام) سے پوری طرح واقفیت ہو جائے

خصوصی مقاصد:

☆ نظریہ کی تعریف بیان کر سکے اور اس کی وضاحت کر سکے

☆ 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

- محمد بن قاسم کے ہندوستان پر حملہ کی وجہ بیان کر سکے
- محمد بن قاسم کے ہندوستان پر حملہ کے اثرات بیان کر سکے
- بیان کر سکے کہ ہندوستان میں ہندو مسلم دو قومی نظریہ کا نکتہ آغاز کیا ہے
- مجدد الف ثانیؒ کی علمی خدمات بیان کر سکے
- شاہ ولی اللہ کی علمی خدمات بیان کر سکے
- مجدد الف ثانیؒ 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 - ندوت العلماء مدرسۃ السلام ، اسلامیہ کالج۔ انجمن حمایت اسلام نے تعلیم کے ذریعہ سیاسی شعور مسلمانوں میں پیدا کیا اسے بیان کر سکے
- آزادی ہند کے سلسلہ میں تحریک مجاہدین کی خدمات بیان کر سکے

SUMMARY

Course Title: English

Objective

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 Duration

Theory	64 Hours	Two hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 50 Marks

Books

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

English
Course Framework

PAPER-A

1. **Prose/Text**
   1.1. First eight essays of Intermediate English Book-II

2. **Cloze Test**
   2.1. 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.

PAPER-B

3. **Grammar**
   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**
   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.

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

Omni Academy

Diploma Software Engineering

Detailed Course Outline

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 subject and a predicate.
- 3.2. State classification of time, i.e. present, past and future and use verb tense correctly 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 Practical Situations
- 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 in practical situation.

5. Apply 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 and sentences.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Applied Mathematics – I

Objective

After completing the course, the students will be able to

1. Solve problems of Algebra, Trigonometry, and vectors, Mensuration, 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 Duration

Theory	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Ghulam Yasin Minhas, Technical Mathematics Vol I, Ilmi Kitab Khana, Lahore
2. Riaz Ali Khan, Polytechnic Mathematics Series Vol-I and Vol-II, Majeed Sons, Faisalabad.
3. Sana Ullah Bhatti, A Text Book of Algebra and Trigonometry, Punjab Text Book Board, Lahore

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Applied Mathematics - I

Course Framework

1. Quadratic Equations
- 1.1. Standard Form
- 1.2. Solution
- 1.3. Nature of roots
- 1.4. Sum & Product of roots
- 1.5. Formation
- 1.6. Problems

2. Binomial Theorem
- 2.1. Factorials
- 2.2. Binomial Expression
- 2.3. Binomial Co-efficient
- 2.4. Statement
- 2.5. The General Term
- 2.6. The Binomial Series
- 2.7. Problems.

3. Partial Fractions
- 3.1. Introduction
- 3.2. Linear Distinct Factors Case I
- 3.3. Linear Repeated Factors Case II
- 3.4. Quadratic Distinct Factors Case III
- 3.5. Quadratic Repeated Factors Case IV
- 3.6. Problems

4. Fundamentals Of Trigonometry
- 4.1. Angles
- 4.2. Quadrants
- 4.3. Measurements of Angles
- 4.4. Relation between Hexadecimal & circular system
- 4.5. Relation between Length of a Circular Arc & the Radian Measure of its central Angle
- 4.6. Problems

5. Trigonometric Functions And Ratios
- 5.1. Trigonometric functions of any angle
- 5.2. Signs of trigonometric Functions
- 5.3. Trigonometric Ratios of particular Angles
- 5.4. Fundamental Identities
- 5.5. Problems

6. General Identities

6.1. The Fundamental Law
6.2. Deductions
6.3. Sum & Difference Formulae
6.4. Double Angle Identities
6.5. Half Angle Identities
6.6. Conversion of sum or difference to products
6.7. Problems

7. Solution of Triangles
7.1. The law of Sines
7.2. The law of Cosines
7.3. Measurement of Heights & Distances
7.4. Problems

8. Vectors and Phasors
8.1. Scalars and Vectors
8.2. The unit Vectors i, j, k
8.3. Direction Cosines
8.4. Dot Product
8.5. Cross Product
8.6. Analytic Expressions for dot and cross products
8.7. Phasors
8.8. Significance of j Operator
8.9. Different Forms
8.10. Algebraic Operations
8.11. Problems

9. Complex Numbers
9.1. Introduction and Properties
9.2. Basic Operations
9.3. Conjugate
9.4. Modulus
9.5. Different Forms
9.6. Problems

10. Boolean Algebra and Gate Networks
10.1. Concept and basic laws
10.2. Sums of product and products of sums
10.3. Binary, decimals and octal, presentation of decimal numbers in BCD
10.4. Interconversion of numbers
10.5. OR Gates and AND Gates
10.6. Logical Expressions and their simplifications
10.7. DE Morgan's Theorems
10.8. NAND Gates and NOR Gates
10.9. Problems

11. Plane Analytic Geometry and Straight Line

11.1. Coordinate system
11.2. Distance formula
11.3. Ration Formulas
11.4. Inclination and slope of line
11.5. Slope Formula
11.6. Problems

12. Equations of The Straight Line
12.1. Some Important Forms
12.2. General form
12.3. Angle Formula
12.4. Parallelism and Perpendicular
12.5. Problems

13. Equations of The Circle
13.1. Standard and Central forms of equations
13.2. General Form of Equation
13.3. Radius and Coordinates of Centre
13.4. Problems

INSTRUCTIONAL OBJECTIVES

1. Use Different Methods for The Solution of Quadratic Equation
1.1. Define a standard quadratic equation.
1.2. Use methods of factorization and method of completing the square for solving the 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 the sum and product of the roots.
1.7. Form a quadratic equation from the given roots.
1.8. Solve problems involving quadratic equations.

2. Apply Binomial Theorem for The Expansion of Binomial and Extraction of Roots.
2.1. State binomial theorem for positive integral index.
2.2. Explain binomial coefficients: (n,0), (n,1).....(n,r)....., (n,n)
2.3. Derive expression for the general term.
2.4. Calculate the specified terms.
2.5. Expand a binomial of a given index.
2.6. Extract the specified roots.
2.7. Compute the approximate value to a given decimal place.
2.8. Solve problems involving binomials.

3. Apply Different Methods for Resolving a Single Fraction into Partial Fractions Using Different Methods
3.1. Define a partial fraction, a proper and an improper fraction.

3.2. Explain all the four types of partial fractions.
3.3. Set up equivalent partial fractions for each type.
3.4. Explain the methods for finding constants involved.
3.5. Resolve a single fraction into partial fractions.
3.6. Solve problems involving all the four types.

4. Understand the Systems of Measurement of Angles.
4.1. Define angles and the related terms.
4.2. Illustrate the generation of an angle.
4.3. Explain hexadecimal and circular systems for the measurement of angles.
4.4. Derive the relationship between radian and degree.
4.5. Convert radians to degrees and vice versa.
4.6. Derive a formula for the circular measure of a central angle.
4.7. Use this formula for solving problems.

5. Understand Basic Concepts and Principles of Trigonometric Functions.
5.1. Define the basic trigonometric functions/ratios of an angle as ratios of the sides of a right triangle.
5.2. Derive fundamental identities.
5.3. Find trigonometric ratios of particular angles.
5.4. Draw the graph of trigonometric functions.
5.5. Solve problems involving trigonometric functions.

6. Use Trigonometric Identities in Solving Technological Problems.
6.1. List fundamental identities.
6.2. Prove the fundamental law.
6.3. Deduce important results.
6.4. Derive sum and difference formulas.
6.5. Establish half angle, double and triple angle formulas.
6.6. Convert sum or difference into product and vice versa.
6.7. Solve problems.

7. Use Concept, Properties and Laws of Trigonometric Functions for Solving Triangles.
7.1. Define angle of elevation and angle of depression.
7.2. Prove the law of sines and the law of cosines.
7.3. Explain elements of a triangle.
7.4. Solve triangles and the problems involving heights and distances.

8. Understand Principles of Vectors and Phasors
8.1. Define unit vectors i, j, k.
8.2. Express a vector in the component form.
8.3. Explain magnitude, unit vector, direction cosines of a vector.
8.4. Explain dot product and cross product of two vectors.
8.5. Deduce important results from dot and cross product.

8.6. Define phasor and operator j.
8.7. Explain different forms of phasors.
8.8. Perform basic Algebraic operation on phasors.
8.9. Solve problems on phasors.

9. Use Principles of Complex Numbers in Solving Technological Problems.
9.1. Define a complex number and its conjugate.
9.2. State properties of complex numbers.
9.3. Give different forms of complex numbers.
9.4. Perform basic algebraic operations on complex numbers.
9.5. Solve problem involving complex numbers.

10. Solve Technical Problems Using Principles of Boolean Algebra
10.1. Explain fundamental concepts of Boolean algebra
10.2. Explain binary numbers, octal numbers, decimal numbers and their interconversion.
10.3. Explain digital addition and multiplication and its applications to OR gates and Gates
10.4. Illustrate complementation and inversion
10.5. Evaluate logical expression
10.6. List basic Laws of Boolean Algebra
10.7. Explain De-Morgan's theorem
10.8. Explain basic duality of Boolean algebra
10.9. Derive Boolean expression
10.10. Explain combination of GATES
10.11. Illustrate sum of products and product of sum
10.12. Derive product of sum expression
10.13. Explain NAND Gates and NOR Gates
10.14. Use the map methods for simplifying expressions
10.15. Explain sub-cubes and covering

11. Understand the Concept of Plane Analytic Geometry
11.1. Explain the rectangular coordinate system.
11.2. Locate points in different quadrants.
11.3. Derive distance formula.
11.4. Describe the ratio formula
11.5. Derive slope formula
11.6. Solve problems using the above formulae.

12. Use Equations of Straight Line in Solving Problems.
12.1. Define equation of a straight line.
12.2. Derive slope intercept and intercept forms of equations of a straight line.
12.3. Write general form of equations of a straight line.
12.4. Derive an expression for angle between two straight lines.
12.5. Derive conditions of perpendicular and parallelism of two straight lines.

12.6. Solve problems using these equations/formulae.

13. Solve Technological Problems Using Equations of Circle

13.1. Define a circle.

13.2. Describe standard, central and general forms of the equation of a circle.

13.3. Convert general form to the central form of equation of a circle.

13.4. Deduce formula for radius and coordinates of the centre of a circle.

13.5. Derive equation of the circle passing through three points.

13.6. Solve problems involving these equations.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Applied Physics

Objective

The students will be able to understand the fundamental principles and concept of Physics use these to solve problems in practical situations/technological courses and understand concepts to learn advance Physics/technical course.

Course Duration

Theory	32 Hours	One hours per week
Practical	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Tahir Hussain, Fundamentals of Physics Vol. – I and II
2. Farid Khawaja, Fundamental of Physics Vol. – I and II
3. Wells and Slusher, Schaum's Serices Physics
4. Nelkon and Oyborn, Advanced Level Practical Physics
5. Mehboob Illahi Malik and Inam ul Haq, Practical physics
6. Wilson, Lasers – Principles and Applications
7. M. Aslam Khan and M. Akram Sandhu, Experimental Physics Note Book

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Applied Physics

Course Framework

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

3. Motion
- 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. Sound
- 5.1. Longitudinal waves
- 5.2. Intensity, loudness, pitch and quality of sound
- 5.3. Units of intensity of level and frequency response of ear
- 5.4. Interference of sound waves silence zones, beats
- 5.5. Acoustics
- 5.6. Doppler effect

6. Light
- 6.1. Review laws of reflection and refraction
- 6.2. Image formation by mirrors and lenses
- 6.3. Optical instruments
- 6.4. Waves theory of light
- 6.5. Interference, diffraction, polarization of light waves

6.6. Applications of polarization in sunglasses, optical activity and stress analysis

7. Optical Fiber
- 7.1. Optical communication and problems
- 7.2. Review total internal reflection and critical angle
- 7.3. Structure of optical fiber
- 7.4. Fiber material and manufacture
- 7.5. Optical fiber – uses

8. Lasers
- 8.1. Corpuscular theory of light
- 8.2. Emission and absorption of light
- 8.3. Stimulated absorption and emission of light
- 8.4. Laser principles
- 8.5. Structure and working of lasers
- 8.6. Types of lasers with brief description
- 8.7. Applications (Basic concepts)
- 8.8. Material processing
- 8.9. Laser welding
- 8.10. Laser assisted machining
- 8.11. Micro machining
- 8.12. Drilling, scribing and marking
- 8.13. Printing
- 8.14. Lasers in medicine

9. Electromagnetic waves
- 9.1. Magnetic field around a current carrying conductor
- 9.2. Electric field induced around a changing magnetic flux
- 9.3. Moving fields
- 9.4. Types of electromagnetic waves
- 9.5. Generation of Radio waves
- 9.6. Spectrum of electromagnetic waves

10. Artificial Satellites
- 10.1. Review law of gravitation
- 10.2. Escape velocity
- 10.3. Orbital velocity
- 10.4. Geosynchronous and geostationary satellites
- 10.5. Use of satellites in data communication

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 of forces.
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 problem.
3.2. Explain relation between liner 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. Understand concepts of sound
5.1. Describe longitudinal wave and its propagation.
5.2. Explain the concepts: Intensity, loudness, pitch and quality of sound.
5.3. Explain units of intensity of level and frequency response of ear.
5.4. Explain phenomena of silence zones, beats.
5.5. Explain acoustics of buildings.
5.6. Explain Doppler's Effect giving mathematical expressions.

6. Use the concepts of geometrical optics to mirrors and lenses
6.1. Explain laws of reflection and refraction.
6.2. Use mirror formula to solve problems.
6.3. Use the concepts of image formation by mirrors and lenses to describe working of optical instruments, e.g. microscope, telescopes, camera and sextant.

7. Understand wave theory of light
7.1. Explain wave theory of light.
7.2. Explain phenomena of interference, diffraction, polarization of light waves.
7.3. Describe uses of polarization given in the course contents.

8. Understand the structure, working and uses of optical fibre
8.1. Explain the structure of the optical fibre.
8.2. Explain its principles of working.
8.3. Describe use of optical fibre in industry and medicine.

9. Understand the structure, working and uses of lasers
- 9.1. Explain the stimulated emission of radiation.
- 9.2. Explain the laser principle.
- 9.3. Describe the structure and working of lasers.
- 9.4. Distinguish between types of laser.
- 9.5. Describe the applications of lasers in the fields mentioned in the courses contents.

10. Understand nature, types, generation and spectrum of electromagnetic waves
- 10.1. Explain magnetic field due to current and electric field due to changing magnetic flux.
- 10.2. Explain moving fields.
- 10.3. Describe types of electromagnetic waves.
- 10.4. Explain generation of radio waves
- 10.5. Explain spectrum of electromagnetic waves.

11. Understand types and uses of artificial satellites
- 11.1. Explain escape velocity.
- 11.2. Explain orbital velocity.
- 11.3. Distinguish between geosynchronous and geostationary satellites.
- 11.4. Describe uses of artificial satellites in data communication.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

List of practical

1. Draw graphs representing the functions:
   1.1. Y=mx for m=0, 0.5, 1,2
   1.2. $Y=x^2$
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. Proven that force is directly proportional to (a) mass, (b) acceleration, using Fletcher's 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:
   7.1. Law of parallelogram of forces.
   7.2. Law of triangle of forces.
8. Verify law op 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.
11. Find the weight of a given body using principle of moments.
12. Locate the center 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 column in 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 center 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 plan mirror.
29. Find focal length of converging lens by displacement method.
30. Find focal length of diverging lenses 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 leas 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.

SUMMARY

Course Title: Applied Chemistry

Objective

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. Becomes acquainted with the basic principles of chemistry as applied in the study of relevant Technology.
3. Knows the scientific methods for production, properties and use of materials of industrial & technological significance.
4. Gain skill for the efficient conduct of practical in a chemistry lab.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Intermediate Text-Books of chemistry I & II
2. ILMI Applied Science by SH. Ata Mohammed
3. Materials science by J.C.Anderson & Leaver.
4. Polytechnic Chemistry by G.N.Ready (ELBS & Nelson, Hong Kong).
5. Chemistry for engineers by Eric Gyngell.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Applied Chemistry

Course Framework

1. Introduction
- 1.1. The scope and significance of the subject.
- 1.2. Orientation with reference to Technology.
- 1.3. Terms used & units of measurements in the study of chemistry.

2. Fundamental Concepts of Chemistry
- 2.1. Symbols, Valency, Radicals, formulas.
- 2.2. Chemical Reactions & their types.
- 2.3. Balancing of equations by ionic method.

3. Atomic Structure
- 3.1. Sub-atomic particles.
- 3.2. Bohr's Atomic Model.
- 3.3. The periodic classification of elements and periodic law
- 3.4. General characteristics of a period and group.

4. Chemical Bond
- 4.1. Nature of chemical Bond.
- 4.2. Electrovalent bond with examples.
- 4.3. Covalent Bond (Polar and Non-polar, sigma & Pi Bonds with examples.
- 4.4. Co-ordinate Bond with examples.

5. Solids and Liquids
- 5.1. The liquid and Solids state.
- 5.2. The liquids and their general properties (Density, viscosity, surface tension capillary action etc.).
- 5.3. Solids and their general properties.
- 5.4. Crystal structure of solids
- 5.5. Crystals of Si and Ge.

6. Water
- 6.1. Chemical nature and properties.
- 6.2. Impurities.
- 6.3. Hardness of water (types, causes & removal)
- 6.4. Scales of measuring hardness (Degrees Clark, French, PPM, Mgm per litre).
- 6.5. Boiler feed water, scales and treatment.
- 6.6. Sea-water desalination, sewage treatment.

7. Acids, Bases and Salts
- 7.1. Definitions with examples.
- 7.2. Properties, their strength, basicity & Acidity.
- 7.3. Salts and their classification with examples.

7.4. pH-value and scale.

8. Oxidation & Reduction
- 8.1. The process with examples.
- 8.2. Oxidizing and Reducing agents.
- 8.3. Oxides and their classifications.

9. Nuclear Chemistry
- 9.1. Introduction.
- 9.2. Radioactivity (Alpha, beta and gamma rays).
- 9.3. Half-life process.
- 9.4. Nuclear reaction & transformation of elements.
- 9.5. Isotopes and their uses.

10. Alloys
- 10.1. Introduction with need.
- 10.2. Preparation and properties.
- 10.3. Some important alloys and their composition.

11. Corrosion
- 11.1. Introduction with causes.
- 11.2. Types of corrosion.
- 11.3. Rusting of Iron
- 11.4. Protective measures against corrosion.

12. Electro Chemistry
- 12.1. Ionization and Arrhenius theory of Ionization.
- 12.2. Electrolytes and Electrolysis.
- 12.3. Faraday's Laws and numerical related to them.
- 12.4. Application of Electrolysis (Electron, lathing etc.).
- 12.5. Electro Chemical cells.

13. Electrical Insulating Materials
- 13.1. Introduction.
- 13.2. Solid insulators with chemical nature.
- 13.3. Liquid insulators with chemical nature.
- 13.4. Gaseous insulators with chemical nature.
- 13.5. Uses and their classification.

14. Semi-Conductors
- 14.1. Introduction
- 14.2. Atomic structure of silicon and germanium.
- 14.3. Bonding & Conductivity.
- 14.4. Energy bands in a semiconductor.

15. Etching Process.
- 15.1. The process and its aims.
- 15.2. Etching reagents.

15.3. Applications of processors.

INSTRUCTIONAL OBJECTIVES

1. Understand the Scope, Significance and Role of The Subject.
- 1.1. Define chemistry and its terms.
- 1.2. Define the units of measurements in the study of chemistry.
- 1.3. Explain the importance of chemistry in various fields of specialization.
- 1.4. Explain the role of chemistry in this technology.

2. Understand Language of Chemistry and Chemical Reactions.
- 2.1. Define symbol, valency, radical, formula with examples of each.
- 2.2. Write chemical formula of common compounds.
- 2.3. Define chemical reaction and equations.
- 2.4. Describe types of chemical reactions with examples.
- 2.5. Explain the method of balancing the equation by ionic method.

3. Understand the Structure of Atoms and Arrangement of Sub Atomic Particles in The Architecture of Atoms.
- 3.1. Define atom.
- 3.2. Describe the fundamental sub atomic particles
- 3.3. Distinguish between atomic no. mass no. and between isotope and isobars.
- 3.4. Explain the arrangements of electrons in different shells and sub energy levels and understand bohr's atomic model.
- 3.5. Explain the grouping and placing of elements in the periodic table especially Si & germanium.
- 3.6. State the periodic law of elements.
- 3.7. Explain the trend of properties of elements based on their position in the periodic table.
- 3.8. Explain general characteristics of a period and a group.

4. Understand the Nature of Chemical Bonds.
- 4.1. Define chemical Bond.
- 4.2. State the nature of chemical bond.
- 4.3. Differentiate between electrovalent and covalent bonding.
- 4.4. Explain the formation of polar and non-polar, sigma and pi-bond with examples.
- 4.5. Describe the nature of coordinate bond with examples.

5. Understand the States of Matter and Distinguishes Solids from Gases.
- 5.1. Describe the liquid and solid states of matter.
- 5.2. State the general properties of liquid.
- 5.3. State the general properties of solid.
- 5.4. Explain the formation of crystals and their types.
- 5.5. Describe the crystal structure of Si and Ge.

6. Understand the Chemical Nature of Water.
- 6.1. Describe the chemical nature of water with its formula.
- 6.2. Describe the general impurities present in water.
- 6.3. Explain the causes and methods to remove hardness of water.
- 6.4. Express hardness in different units like mg/litre. p.p.m, degrees Clark and degrees French.

6.5. Describe the formation and nature of scales in boiler feed water.
6.6. Explain the method for the treatment of scales.
6.7. Explain the sewage treatment and desalination of sea water.

7. Understand the Nature of Acids, Bases and Salts.
7.1. Define acids, bases and salts with examples.
7.2. State general properties of acids and bases.
7.3. Differentiate between acidity and basicity.
7.4. Define salts, give their classification with examples.
7.5. Explain pH value of solution and pH scale.

8. Understand the Process of Oxidation and Reduction.
8.1. Define oxidation.
8.2. Illustrate the oxidation process with examples.
8.3. Define reduction.
8.4. Explain reduction process with examples.
8.5. Define oxidizing and reducing agents and give at least six examples of each.
8.6. Define oxides.
8.7. Classify the oxides and give examples.

9. Understand the Fundamentals of Nuclear Chemistry.
9.1. Define nuclear chemistry and radio activity.
9.2. Differentiate between alpha, beta and gamma particles.
9.3. Explain half-life process.
9.4. Explain at least six nuclear reactions resulting in the transformation of some elements.
9.5. State the uses of isotopes.

10. Understand the Nature of Alloys Used in The Respective Technology.
10.1. Define alloy.
10.2. Explain different methods for the preparation of alloys.
10.3. Explain important properties of alloys.
10.4. Explain the composition, properties and uses of alloys.

11. Understand the Process of Corrosion.
11.1. Define corrosion.
11.2. Describe different types of corrosion.
11.3. State the causes of corrosion.
11.4. Explain the process of rusting of iron.
11.5. Describe methods to prevent/control corrosion.

12. Understand the Application of Electrochemistry in Different Fields of Industries.
12.1. Define ionization, electrolyte and electrolysis.
12.2. Describe Arrhenius theory of ionization.
12.3. State Faraday's laws of electrolysis.
12.4. Apply Faraday's laws of different fields of industry.
12.5. Solves numerical problem on Faraday's Laws.
12.6. Explain the construction and working of Daniel cell and lead accumulator.

13. Know the Use of Insulating Materials.
- 13.1. Define insulator, conductor.
- 13.2. Classify solid, liquid and gaseous insulators with their chemical nature.
- 13.3. Describe their uses.

14. Understand the Nature and Chemistry of Semi-Conductors.
- 14.1. Define semi -conductors.
- 14.2. Draw the atomic structure of silicon and germanium.
- 14.3. Describe the process of bonding and conductivity in conductors and semi-conductors.
- 14.4. Explain energy bands in semi- conductors.

15. Use Etching Process in Different Fields of Technology.
- 15.1. Define etching process and its aims.
- 15.2. Enlist the chemicals/reagents used in the process.
- 15.3. Explain the use of the process in the technology.

List of Practical

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 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 analyze 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^{+++}, Cu^{+++})
18. To detect dilute asset group.
19. To detect and confirm CO_3 and HCO_3
20. To get introduction with the methods or apparatus of conduction volume matric estimations.
21. To prepare standard solution of a substance.
22. To find the strength of a even alkali solution
23. To estimate HCO_3 contents in water.
24. To find out the percentage composition of a mixture solution of KNO_3 and KOH volume metrically.
25. To find the amount of chloride ions (Cl) in water volume metrically.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Occupational Health, Safety & Environment

Objective

An introductory course on work-related health and safety issues. It aims to provide students with right attitude toward safety in work places. It covers the topics on different possible causes of safety hazards. It is pure theory course.
At the end of the course the students are expected to be able to

1. Understand the issues affecting occupational health and safety.
2. Apply concepts of environmental protection
3. Practice safety measures in laboratory and workplaces
4. Integrate health and safety consciousness in daily life

Course Duration

Theory 32 Hours One hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Safety Practices and Procedures by NISTE
2. Health and Safety Executive — A Guide to Risk Assessment Requirements: Common Provisions in Health and Safety Law (HSE Books, 1996) ISBN 0717612112
3. Health and Safety Executive — Management of Health and Safety at Work (HSE Books, 2000) ISBN 0717624889

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Occupational Health, Safety & Environment

Course Framework

INSTRUCTIONAL OBJECTIVES

1. Understand how to Identify and control of Hazards
- 1.1. Understand methods of identify hazards with in the work place.
  - 1.1.1. Discuss the role of statements
  - 1.1.2. Describe the analysis of significant risks
  - 1.1.3. Discuss the prediction of results or outcomes of the risks
  - 1.1.4. Discuss the use of accident data
  - 1.1.5. Describe the careful consideration of work methods
- 1.2. Understand the consideration of the workplace and its potential for harm.
  - 1.2.1. Describe confined spaces
  - 1.2.2. Discuss working at heights
  - 1.2.3. Discuss Electrical hazards
  - 1.2.4. Discuss Chemicals related to hazards
  - 1.2.5. Discus role of noise.
- 1.3. Understand Hazards which become risks:
  - 1.3.1. Able to identification of minor or major risk
  - 1.3.2. Describe potential to cause harm
  - 1.3.3. Able to choosing appropriate control measures
  - 1.3.4. Understand Electrical safety
    - 1.3.4.1. Describe cause of injury in electrical work
    - 1.3.4.2. Describe effects of electricity on the body
    - 1.3.4.3. Describe circuit overloading
  - 1.3.5. Understand Mechanical safety
    - 1.3.5.1. Describe cause of injury in mechanical work
    - 1.3.5.2. Discuss the role of rotating equipment in hazards.
    - 1.3.5.3. Discuss the role of sharp edges in hazards.
- 1.4. Understand role of Safety Devices
  - 1.4.1. Understand the role of residual current device (RCD)
  - 1.4.2. Understand the role of fuses
  - 1.4.3. Understand the role of guards
  - 1.4.4. Understand the role of sensors

2. Risk assessment and identify control measures
- 2.1. Understand five steps Risk assessments
  - 2.1.1. principal hazards
  - 2.1.2. who is likely to be injured/harmed
  - 2.1.3. evaluate the risks and decide on adequacy of precautions
  - 2.1.4. recording findings
  - 2.1.5. review assessment
- 2.2. Understand the use of control measures
  - 2.2.1. Discuss use of recognized procedures
  - 2.2.2. Discuss substances control
  - 2.2.3. Discuss guarding

2.2.4. Discuss lifting assessments and manual handling assessments
2.2.5. Discuss regular inspection
2.2.6. Discuss use of Personal Protective Equipment (PPE)
2.2.7. Discuss training of personnel
2.2.8. Discuss other personal procedures for health, safety and welfare

3. Understand the Methods used when reporting and recording accidents and incidents.
3.1. Discuss why employers keep records of serious accidents, incidents and emergencies
3.2. Describe the responsibilities of competent persons
3.3. Discuss cost of accidents
3.4. Discuss recording of trends such as major causes, fatal and serious injury
3.5. Discuss methods of classification
3.6. Discuss statistics used in recording
3.7. Understand Recording and reporting procedures
3.7.1. Describe accident book, company procedures
3.7.2. Discuss the procedures to deal with near miss or dangerous occurrences

4. Understanding Workstation/ workshop designing.
4.1. Discuss setting arrangements of Computer Labs/ workshop
4.2. Describe Workstation setting
4.3. Explain cleaning and maintenance procedure
4.4. Describe Electrostatic Discharge Precaution and Procedure
4.5. Understand Working Posture

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Microsoft Office 2016

Objective.

Provide hands-on use of Microsoft Office 2016 applications Word, Excel and PowerPoint. Completion of the assignments will result in MS Office applications knowledge and skills. The student will be able to create reports, CV, and other documents.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

Microsoft Office 2016 Step by Step	Joan Preppernau

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Microsoft Office 2016

Course Framework

1. **MS. Word 2016**
   - 1.1. What is Word 2016?
   - 1.2. Opening A File in Word 2016
   - 1.3. Saving a File and using 'Save As'
   - 1.4. Closing a Word 2016 Document
   - 1.5. The Office Assistant
   - 1.6. The Word 2016 Screen
   - 1.7. Moving Through a Word Document
   - 1.8. The Word 2016 Menu Bar and Drop-Down Menus
   - 1.9. Word 2016 Toolbars
   - 1.10. The Word 2016 Status Bar
   - 1.11. Entering Text into a Word Document
   - 1.12. Word 2016 Selection Techniques
   - 1.13. Deleting Text
   - 1.14. Different Word 2016 Views
   - 1.15. Undo and Repeat
   - 1.16. Help Within Word 2016
   - 1.17. Word 2016 Keyboard Shortcuts
   - 1.18. What is Page Formatting?
   - 1.19. Page Margins
   - 1.20. Page Size and Orientation
   - 1.21. Page Breaks
   - 1.22. Headers and Footers
   - 1.23. Numbering Pages
   - 1.24. Creating a Table
   - 1.25. Columns
   - 1.26. What Is Word 2016 Font Formatting?
   - 1.27. Bold and Italics
   - 1.28. Underlining Text
   - 1.29. Changing Case
   - 1.30. Drop Caps
   - 1.31. Text Effects
   - 1.32. Font Formatting - Keyboard Shortcuts
   - 1.33. Spell Checking
   - 1.34. The Thesaurus
   - 1.35. Printing Within Word 2016
   - 1.36. Print Setup
   - 1.37. Printing Options
   - 1.38. Print Preview
   - 1.39. Paragraph Formatting
   - 1.40. Paragraph Formatting Shortcuts
   - 1.41. Aligning Text in a Document

1.42. Indenting
1.43. Bullets and Numbering
1.44. Page Breaks
1.45. Headers and Footers
1.46. Numbering Pages

2. MS. Excel 2016

2.1. The Advantages of Using Excel 2016
2.2. What are Workbooks and Worksheets?
2.3. Creating and Opening Workbooks
2.4. Entering Data
2.5. Further Data Entry Techniques
2.6. AutoCorrect
2.7. AutoComplete
2.8. Using Pick from List
2.9. Navigating in the Worksheet
2.10. Selecting Items Within Excel 2016
2.11. Inserting and Deleting Cells,
2.12. Rows and Columns
2.13. Saving Workbooks
2.14. Moving Between Worksheets
2.15. Closing an Excel 2016 Workbook
2.16. Exiting Excel 2016
2.17. Creating a Chart
2.18. Manipulating Charts
2.19. Changing the Chart Type
2.20. Margins
2.21. Centring a Report on the Page
2.22. Headers and Footers
2.23. Sheet Printing Options
2.24. Choosing a Printer and Changing Settings
2.25. Printing a Worksheet
2.26. Printing Multiple Files
2.27. The Standard Toolbar
2.28. The Formatting Toolbar
2.29. Selecting Worksheet Views
2.30. Undo and Repeat
2.31. Formatting Options Within Excel 2016
2.32. Alignment
2.33. Data Indentation and Rotation
2.34. To Centre Items in a Cell/Cells
2.35. Using Fonts
2.36. Formatting Numbers

2.37. Formatting Columns and Rows
2.38. Deleting Cells, Formats, Objects and Worksheets
2.39. Adding, Editing and Removing Borders
2.40. Using AutoFormat
2.41. Formulas
2.42. Operator Evaluation Order Within Excel 2016
2.43. Functions
2.44. Using the SUM Function
2.45. Other Commonly Used Functions
2.46. Using Paste Function
2.47. Naming Cells and Ranges

3. MS. Power Point 2016

3.1. Creating a New Blank Presentation
3.2. Selecting a Slide Layout
3.3. Simple Text Slide
3.4. To Insert a New Slide
3.5. Deleting and re-ordering slides within a presentation
3.6. The View Icons
3.7. Manipulating slides in Outline View
3.8. Creating Notes for your Slides
3.9. The Drawing Toolbar
3.10. Using the Drawing Tools
3.11. AutoShapes
3.12. Using Clipart
3.13. Selecting Objects
3.14. Grouping and Un-Grouping Objects
3.15. Aligning Objects
3.16. Moving Objects Forwards and Backwards
3.17. Applying and Creating Colour Schemes
3.18. Adding a Custom Background
3.19. What is a Slide Show?
3.20. Navigation Through a Slide Show
3.21. Slide Show Transitions
3.22. Slide Show Timings
3.23. Slide Show Annotations
3.24. Hidden Slides
3.25. What are Animation Effects?

Omni Academy

Diploma Software Engineering

Detailed Course Outline

MS OFFICE 2016

List Of practical

1. Inserting data
2. Inserting images
3. Making design layout
4. Basic knowledge of home, insert, design, layout.
5. Creating tables
6. Making Reports
7. CV
8. Reports
9. Worksheet
10. Pivot tables
11. Pie chart
12. Mark sheet
13. Balance sheet
14. Creating presentation
15. Animations
16. Inserting pivot tables in Presentations
17. Macros

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: HTML5 & CSS3

Objective

The objective of this course is to make student understand the purpose of both html and CSS when creating a web page. To, make understand basic tags and formatting of html and CSS.

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Reference Books

HTML and CSS: Design and Build Websites Jon Duckett

Omni Academy

Diploma Software Engineering

Detailed Course Outline

HTML5 & CSS3

Course Framework

1. Introduction to webpage, web browser & HTML
2. The Structure of HTML
3. HTML5 form validation
4. Semantic HTML5 Section Tags
5. Media tags
6. CSS introduction
7. CSS with Dreamweaver
8. Cascading style sheets
9. Working with links
10. Templates
11. Using forms and fields
12. CSS3 Modules
13. Working with div
14. Working with images
15. Page layout

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Diploma Software Engineering

Detailed Course Outline

List of Practical

1. Creating an html file.
2. HTML elements
3. HTML attributes
4. HTML tables
5. HTML links
6. Making navigation
7. Creating tables in html.
8. Adding images to your website
9. Adding blocks to your website
10. Classes
11. HTML Forms
12. HTML Forms Validation.
13. HTML Forms Input Type
14. HTML Media
15. HTML APIs
16. Creating CSS file.
17. Background images
18. Background colours
19. Padding
20. Margins
21. Float
22. CSS navigation Bar
23. CSS image gallery
24. CSS Forms
25. CSS Website Layout
26. CSS Buttons
27. CSS Paginations
28. CSS User Interface

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Introduction to PHP

Objective

Objectives of this course:

Understand how server-side programming works on the web. PHP basic syntax for variable types and calculations. Creating conditional structures Storing data in arrays

Using PHP built-in functions and creating custom functions Understanding POST and GET in form submission. How to receive and process form submission data

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

Beginning PHP 5.3 Matt Doyle

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Diploma Software Engineering

Detailed Course Outline

Introduction to PHP

Course Framework

1. Introduction to PHP
2. PHP echo/print
3. PHP data types
4. PHP string
5. PHP constants
6. For loop
7. Logical AND OR
8. Arrays and Functions
9. Variables and constants
10. Data Types
11. Operators
12. If
13. Switch
14. While

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to PHP

List of Practical

1. Introduction to PHP
2. PHP- If, Else, Else if
3. PHP- Form handling
4. PHP- Form Validation
5. PHP- Variable Types
6. PHP- Strings
7. PHP- Get and POST method
8. For loops
9. Logical AND OR
10. Arrays and Functions
11. Variables and constants
12. Data Types
13. Operators
14. If Statements
15. Switch Statements
16. While Statements
17. Calculator Using Html, CSS, PHP with the help of Switches
18. Printing Prime Numbers in PHP
19. PHP Functions
20. How to call PHP functions
21. PHP Sorting arrays

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Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Database Programming with MySQL

Objective

To, introduce the basic knowledge of database management system. How to Create, manage and plan databases.

To, provide the students with the technical and administrative skills needed by the systems analyst.

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Reference Books

Jump Start MySQL Timothy Boronczyk

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Diploma Software Engineering

Detailed Course Outline

Database Programming with MySQL

Course Framework

1. Getting Started
2. Creating Databases
3. Table management
4. RDBMS
5. Database Normalization
6. Retrieving Data with SQL
7. Retrieving Data with Advanced T-SQL
8. SQL Functions
9. Inserting and Updating Data

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Database Programming with MySQL

List of practical

1. Getting to Know XAMPP
2. Creating database in phpMyAdmin.
3. SQL- Distinct
4. Creating tables in database
5. Inserting values in table manually
6. Inserting SQL code in PHP files
7. Inserting values in tables by PHP forms.
8. CRUD functionality using SQL.
9. Retrieving data of tables with SQL.
10. Retrieving Data with Advanced T-SQL
11. Joins
12. Max, Min, Limit, select, desc, where, in and other SQL functions
13. Inserting and Updating Data

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Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: SEO

Objective

The Search Engine Optimization Course would teach students how to carry out both off page and on page search engine optimization activities on a website and how to use Search engine optimization tools to gauge a website and check the results of all search engine optimization activities carried out on a website as compared to that of a competitor with the similar brand or keyword.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	50 Marks

Books

SEO Book	Aaron Matthew Wall

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SEO

Course Framework

1. How Search Engines Work
2. How important is SEO?
3. Planning Your SEO Campaign
4. SEO-Friendly Web Design and Development
5. On-Page Optimization
6. URL Best Practices
7. Metadata
8. Indexable Content
9. Crawlable Internal Link Structure & Breadcrumbs
10. "no follow" Links
11. Duplicate Content, Redirects and Canonical Links
12. HTML & XML Sitemaps
13. SEO Tools & Services

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SEO

List of practical

1. Web page layout factors relevant to SEO
2. Amount of text on a page
3. Number of keywords on a page
4. Keyword density and SEO
5. Location of keywords on a page
6. Text format and SEO
7. «TITLE» tag
8. Keywords in links
9. «ALT» attributes in images
10. Description Meta tag
11. Keywords Meta tag
12. Site structure
13. Number of pages
14. Navigation menu
15. Keywords in page names
16. Avoid subdirectories
17. One page – one keyword phrase
18. SEO and the Main page
19. Common SEO mistakes
20. Graphic header
21. Graphic navigation menu
22. Script navigation
23. Session identifier
24. Redirects
25. Hidden text, a deceptive SEO method
26. One-pixel links, SEO deception
27. External ranking factors
28. Why inbound links to sites are taken into account
29. Link importance (citation index)
30. Link text (anchor text)
31. Relevance of referring pages
32. Google PageRank – theoretical basics
33. Google PageRank – practical use

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Diploma Software Engineering

Detailed Course Outline

Second Year

Duration: 12 Months Total Marks: 860

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Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Islamiat & Pakistan Studies

اسلامیات / مطالعہ پاکستان

مضمون (سال دوم)

حصہ اول اسلامیات

حصہ دوم مطالعہ پاکستان

کل وقت: 20 گھنٹے

موضوعات

1. سورۃ المومنون آیت ۱ تا ۱۱ آیات کا مع ترجمہ
2. دس منتخب احادیث مع ترجمہ و تشریح
   - ☆ خیارکم من تعسیم القرآن وعلمہ
   - ☆ لا ایمان لمن لا امانۃ لہ ولا دین لمن لا عہد لہ
   - ☆ وایاکم والظن فان الظن اکذب الحدیث
   - ☆ من احدث فی امرنا ہذا ما لیس منہ فہو رد
   - ☆ من حمل علینا السلاح فلیس منا
   - ☆ انا وکافل الیتیم فی الجنۃ
   - ☆ لا ضرر ولا ضرار فی الاسلام
   - ☆ کلکم راع وکلکم راع وکلکم مسئول عن رعیتہ
3. سیرۃ طیبہ
   - ☆ مکی زندگی۔ والادت سے ہجرت
   - ☆ مدنی زندگی۔ معاشرت۔ میثاق مدینہ۔ فتح مکہ (اسباب و نتائج)
4. حضور ﷺ بحیثیت
   - ☆ خطبہ حجۃ الوداع
   - معلم کامل، سربراہ خاندان
5. اسلامی معاشرہ

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

جہاد۔ کسب حلال۔ مسجد (اہمیت و فضیلت)

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

Omni Academy

Diploma Software Engineering

Detailed Course Outline

تدریس مقاصد

عمومی مقاصد بطالبعلم یہ جان سکے کہ آیات قرآنی کی روشنی میں مومن کے اوصاف کیا ہیں

قرآن مجید — منتخب آیات قرآنی

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 اسلامی 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 کی 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 واقع 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 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

☆ تبلیغ کے لغوی معنی بیان کر سکے

☆ تبلیغ کی اہمیت و ضرورت بیان کر سکے

☆ جہاد کے لفظی و اصطلاحی معنی بیان کر سکے

☆ جہاد کی اہمیت بیان کر سکے

☆ جہاد اور قتال میں فرق بیان کر سکے

☆ جہاد کی مختلف اقسام بیان کر سکے

☆ افطار کی تعریف کر سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

نصاب مطالعہ پاکستان

سال دوم

حصہ دوم

کل وقت: 12 گھنٹے

موضوعات

- ☆ دو قومی نظریہ
- ☆ تحریک پاکستان
- ☆ انڈین کانگریس
- ☆ مسلم لیگ
- ☆ تقسیم بنگال
- ☆ میثاق لکھنؤ
- ☆ تحریک خلافت
- ☆ سندھ تحریک
- ☆ تجاویز رضی
- ☆ نہرو رپورٹ
- ☆ قائداعظم کے چودہ نکات
- ☆ خطبہ الہ آباد
- ☆ انتخابات 1938 اور اتحاد المسلمین
- ☆ قرارداد پاکستان

Omni Academy

Diploma Software Engineering

Detailed Course Outline

تدریس مقاصد

تحریک پاکستان

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

خصوصی مقاصد:

- ☆ قومیت کے مفہوم کو بیان کر سکے
- ☆ دو قومی نظریہ کی تعریف و توضیح کر سکے
- ☆ دو قومی نظریہ 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 علامہ اقبال اور قائداعظم کی مساعی بیان کر سکے
- ☆ قیام پاکستان سے مستقبل اسلامی مملکت کے قیام کے لئے مسلم عوام کی کوششوں کو بیان کر سکے
- ☆ مسلم لیگ کے قیام پاکستان کے لئے جدوجہد بیان کر سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

(غیر مسلم طلباء کے لئے)

نصاب اخلاقیات

سال دوم

کل وقت: 20 گھنٹے

موضوعات

معاشرتی: کردار، ہمسایہ، قوم، قومی سطح، شہری سطح، صنعتی ادارہ کی سطح، ضروریات، ورثہ

- ☆ حقوق و فرائض
- ☆ قوت برداشت
- ☆ قوت ارادی
- ☆ لگن و جذبہ
- ☆ وسیع النظری
- ☆ بے غرضی
- ☆ ہمسائی دوستی
- ☆ سخاوتی شعور
- ☆ پاس آزادی
- ☆ کامل ایمانداری
- ☆ تغیرات کو قبول کرنا
- ☆ خود شناسی

Omni Academy

Diploma Software Engineering

Detailed Course Outline

نصاب اخلاقیات

سال دوم

تدریس مقاصد

عمومی مقاصد :

طالب علم: اخلاقیات کی اہمیت و ضرورت سے سمجھ ہو سکے اور بیان کر سکے

خصوصی مقاصد: طالب علم اس قابل ہو کہ

☆ موضوعات کا مطلب بیان کر سکے

☆ عملی زندگی سے مثالوں کی نشاندہی کر سکے

☆ اپنی شخصیت اور معاشرے پر موضوعات کے مطابق مثبت اثرات پیدا کرنے کے طریقے بیان کر سکے

☆ اعلی اخلاقی اقدار میں سے

قوت برداشت۔ قوت ارادی۔ لگن جذبہ۔ وسیع النظری۔ بے غرضی۔ انسانی دوستی خاکساری۔ شعور۔ پرامن آزادی۔

کامل اکائی اور خود شناسی کی اہمیت بیان کر سکے

☆ اخلاقیات سے منسلک ہو کر قومی خدمت بہتر طور پر انجام دے سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Applied Mathematics – II

Objective

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

Course Duration

Theory	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 80 Marks

Books

1. Thomas Finny, Calculus and Analytic Geometry
2. Ghulam Yasin Minhas, Technical Mathematics Vol – I & II, Ilmi Kitab Khana, Lahore
3. Riaz Ali Khan, Polytechnic Mathematic Series Vol I & II, Majeed Sons, Faisalabad.
4. Sana Ullah Bhatti, Calculus and Analytic Geometry, Punjab Text Book Board, Lahore.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Applied Mathematics – II

Course Framework

1. Functions & Limits.
- 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. Continuous function
- 1.8. Problems

2. Differentiation.
- 2.1. Increments
- 2.2. Geometrical interpret
- 2.3. Differentiation ab –initio by first principle.
- 2.4. Geometrical interpretation of differential coeff.
- 2.5. Differentiation coefficient of Xn and (a+b)n
- 2.6. Problems.

3. Differentiation of Algebraic Functions
- 3.1. Explicit Functions
- 3.2. Implicit Functions
- 3.3. Parametric Forms
- 3.4. Problems

4. Differentiation of Trigonometric Functions
- 4.1. Differential Coefficient of Sinx, Cosx, Tanx from first principle.
- 4.2. Differential Coefficient of Cosecx, Secx, Cotx.
- 4.3. Differential Coefficient of Inverse Trigonometric Functions
- 4.4. Problems

5. Differentiation of Logarithmic & Exponential Function
- 5.1. Differentiation of lnx
- 5.2. Differentiation of Log ax
- 5.3. Differentiation of ax
- 5.4. Differentiation of ex
- 5.5. Problems

6. Rate of Change of Variables
- 6.1. Increasing and decreasing functions
- 6.2. Maxima and Minima
- 6.3. Criteria for maximum & minimum values
- 6.4. Methods of finding maximum & minimum
- 6.5. Rate measure

6.6. Slope of a line
6.7. Velocity and acceleration
6.8. Problems

7. Integration (Simple Basic Rules)
7.1. Concept
7.2. Fundamental Formulae
7.3. Important Rules
7.4. Problems

8. Methods of Integration
8.1. Integration by substitution
8.2. Integration by parts
8.3. Problems

9. Definite Integrals.
9.1. Properties
9.2. Application to area
9.3. Problems.

10. Differential Equation.
10.1. Introduction
10.2. Order and Degree
10.3. First Order Differential Equation of 1st Degree
10.4. Solution of Problems
10.5. Problems

11. Laplace Transformation.
11.1. Laplace Transformations
11.2. Inverse Laplace Transformations
11.3. Problems

12. Fourier Series
12.1. Introduction
12.2. Periodic Functions
12.3. Even and Odd Functions
12.4. Problems

13. Statistics
13.1. Concept of mean, median and mode
13.2. Standard Deviation
13.3. Laws of probability
13.4. Problems

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Business Communication

Objective

Second course on English language focuses on business communication. It aims to develop communication skills as applied in business and commerce such as the writing and business correspondence. It covers oral communication and art of listening, interviewing, and report writing among others. It is a pure class discussion.

At the end of the course the students are expected to be able to

1. Understand the basic principles of good and effective business writing in commercial and industrial fields.
2. Use the English language effectively for communication in business
3. Apply knowledge and skill to write business communication with confidence and ease.
4. Write legibly in handwriting and compose communication documents with correct formats.
5. Appreciate the usefulness of written language

Course Duration

Theory	32 Hours	One hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 80 Marks

Books

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

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Business Communication
Course Framework

1. Communication Process
   1.1. Understand the communication process
   1.2. State the benefits of two-way communication
   1.3. Describe a model of communication process.
   1.4. Explain the major communication methods used in organization
   1.5. Identify the barriers to communication and methods of overcoming these barriers
   1.6. Identify misconceptions about communication

2. Oral Communication Skills
   2.1. Understand the process of oral communication
   2.2. Identify speaking situations with other peoples.
   2.3. Identify the strategy steps of speaking.
   2.4. Identify the characteristics of effective speaking.
   2.5. State the principles of one-way communication.
   2.6. State the principles of two-way communication.
   2.7. Identify the elements of oral presentation skills.
   2.8. Determine the impact of non-verbal communication on oral communication.

3. Questioning Skills
   3.1. Determine the uses of questioning skills and clarify information in the oral communication process
   3.2. Identify different types of questions.
   3.3. Determine the purpose of each type of question and its application.
   3.4. Identify the hazards to be avoided when asking questions.
   3.5. Demonstrate questioning skills.

4. Listening Skills
   4.1. Demonstrate the use of active listening skill in the oral communication process
   4.2. State the principles of active listening.
   4.3. Identify skills of active listening.
   4.4. Identify barriers to active listening.
   4.5. State the benefits of active listening.
   4.6. Demonstrate listening skills.
   4.7. Explain the importance of giving and receiving feedback.

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

6. Report Writing

6.1. Prepare a report out-line, based on subject matter and audience
6.2. Identify the different types of reports
6.3. Determine when to use an informal or formal report presentation
6.4. Identify the stages of planning a report
6.5. Identify the parts of a report and choose the parts appropriate for each type of report
6.6. Draft a report outline

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

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

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Introduction to Java

Objective

This is an introductory course in programming using java as the language. At the completion of this course, you will know how to read, write, and debug basic programs using good programming style.

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

Introduction to java programming Liang

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to Java

Course Framework

1. Java - Basic Syntax
2. Java - Object and Classes
3. Java - Basic Datatypes
4. Java - Variable Types
5. Java - Modifier Types
6. Java - Basic Operators
7. Java - Loop Control
8. Java - Decision Making
9. Java - Numbers Class
10. Number Methods
11. Java - Character Class
12. Java - Strings Class
13. Creating Strings
14. Concatenating Strings
15. Creating format Strings
16. String Methods
17. Declaring Array Variables
18. Creating Arrays
19. Processing Arrays

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to Java

List of Practical

1. Hello World Program
2. Printing Employee Salary
3. Java Program to Check Even or Odd Number
4. Java Program to Calculate average of numbers using Array
5. Java Program to display first 100 prime numbers
6. Java Program to display prime numbers between 1 and 100 or 1 and n
7. Java Program to check Prime Number
8. Java Program to Reverse a String using Recursion
9. Java Program to Reverse a number using for, while loop and recursion
10. Java Program to Find Sum of Natural Numbers
11. Java Program to check if a number is Positive or Negative
12. Java Program to check Leap Year
13. Java Program to find ASCII value of a character
14. Java Program to Multiply Two Numbers
15. Java Program to read number from Standard Input
16. Java Program to Add Two Numbers
17. Java Program to convert decimal to hexadecimal
18. Java Program to Convert Decimal to Binary
19. Java Program to convert binary to Decimal
20. Java Program to Convert Decimal to Octal
21. Java Program to Get IP Address
22. Java Program to get Input from User
23. Java Program to find duplicate characters in a String
24. Java Program to generate Random Number
25. Java Program to print Floyd's triangle
26. Java Program to check Palindrome string using Recursion
27. Java Program to check Palindrome String using Stack, Queue, For and While loop
28. Java Program to find Factorial of a number using Recursion
29. Java Program to Add the elements of an Array
30. Java Program to Calculate Area of Rectangle
31. Java Program to Calculate Area of Square
32. Java Program to Calculate the area of Triangle
33. Java Program to Calculate Area and Circumference of Circle
34. Java Program for bubble Sort Ascending or Descending Order

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Introduction to OOP

Objective

After taking the course, participants will be able to Specify simple abstract data types and design implementations, using abstraction functions to document them. Recognise features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity. Name and apply some common object-oriented design patterns and give examples of their use. Design applications with an event-driven graphical user interface.

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

Introduction to java programming	Liang

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to OOP

Course Framework

1. Classes
2. Constructors
3. Object Initializers
4. Methods
5. Fields
6. Properties
7. Access Modifiers
8. Inheritance
9. Method Overriding
10. Abstract Classes and Members
11. Sealed Classes and Members
12. Interface

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to OOP

List of Practical

1. Structuring Classes
2. Defining Class Properties
3. Defining Class Methods
4. Using Constructors and Destructors
5. Converting to a String
6. Using Class Inheritance
7. Overwriting Inherited Properties and Methods
8. Preserving Original Method Functionality While Overwriting Methods
9. Assigning the Visibility of Properties and Methods
10. Protected Properties and Methods
11. Single Level Inheritance
12. Multilevel Inheritance
13. Add two numbers Program in Java
14. Swap Two Number Program in Java
15. Even Odd Number Program in Java
16. Print Table of any number Program in Java
17. Factorial of a number in Java
18. Armstrong number Program in Java
19. Palindrome number Program in Java
20. Prime number Program in Java
21. Print Triangle of Stars in Java
22. Print Alphabet Pattern in Java
23. Java - Files and I/O
24. Java – Exceptions
25. Java – Inheritance
26. Java – Abstraction
27. Java – Encapsulation
28. Java – Polymorphism
29. Method Overloading
30. Method Overriding
31. Interfaces

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Android Development

Objective

Upon completion of this course, attendees will be able to Understand Android platform architecture

Design, develop, debug, and deploy Android applications. Use Android SDK's Emulator to test and debug applications

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Reference Books

Android Programming for Beginners John Horton

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Android Development

Course Framework

1. Downloading SDK
2. Introduction to Android
3. The User Interface and Controls
4. Graphics and Styling
5. Supporting Multiple Screens
6. Menus and Dialogs
7. Notifications
8. Working with Media
9. Preferences and Data Storage
10. Locations and Maps
11. Creating a Home Screen Widget
12. Developing Android Application

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Android Development

List of Practical

1. Introduction to course
2. Installing Java JDK.
3. Creating a basic project
4. Handling button clicks
5. Get values from edit text.
6. Making a BMI calculator android app
7. Understanding what linear layout is
8. Understanding what relative layout is
9. Understanding what grid layout is
10. State changes in an activity
11. Introduction to food app
12. Building the food app
13. Building the food category
14. Adding images to the app
15. How to add fragments to an android app.
16. Creating fragment.
17. Setting up text inside our fragment.
18. Adding listeners to fragments
19. Introduction to SQLite database.
20. Building the SQLite databases
21. Creating the databases using SQLite
22. Adding data to databases.
23. Running testing the application
24. Playing audio in an application.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Web Application Development with PHP

Objective

PHP is a general-purpose programming language that has seen its greatest use in web design and development. In this course, you will learn how to use PHP basically in the aspect of web design and Web development. Course will enable you to learn the basics and the fundamental concepts along with the practical implementation of each one of them. The major part of the course covers creating an application that explains designing websites using PHP.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

PHP for Absolute Beginners Jason Lengstorf

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Application Development with PHP

Course Framework

1. PHP Basics
2. PHP Functions
3. PHP Loops
4. Flow Control
5. Arrays
6. Reusing Code and Writing Functions
7. Session Control and Cookies
8. PHP And Html Forms
9. String Manipulation
10. Sending Email with PHP

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Application Development with PHP

List of Practical

1. PHP - Basics
2. PHP - Keywords
3. PHP - Expressions
4. PHP - Control Structures
5. PHP - Arrays
6. PHP - Array Functions
7. HTTP & PHP Arrays
8. PHP - Functions
9. PHP - Variable Scope
10. PHP - Modularity
11. PHP Forms
12. PHP Form Handling
13. PHP Form Validation
14. PHP - Required Fields
15. PHP - Display the Error Messages
16. PHP 5 Forms - Validate E-mail and URL
17. Using GET and POST with Forms
18. HTML Input Types
19. Code Walkthrough - HTML Input Types
20. HTML5 Input Types
21. PHP 5 Date and Time
22. PHP 5 File Handling
23. PHP 5 File Open/Read/Close
24. PHP 5 File Create/Write
25. PHP 5 File Upload
26. Create Cookies With PHP

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Introduction to CMS (WordPress)

Objective

After completing this lesson, you will be able to:

Adding pages to your website. Installing themes. Describe the benefits of installing the various Plugins on your site.

Install Plugins that will be beneficial to your WordPress site.

Course Duration

Theory	32 Hours	One hour per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

WordPress: The Missing Manual	Matthew MacDonald

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to CMS (WordPress)

Course Framework

1. Getting Started with Word Press
2. Creating a Database for your Website or Blog
3. Installing Word Press
4. Splitting the Code into Templates
5. Adding and Deleting a Page
6. Installing Plugins
7. Installing themes

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Introduction to CMS (WordPress)

List of Practical

1. Local server installation
2. Installing WordPress
3. Creating database
4. Adding pages
5. Posts
6. Installing themes
7. Exporting themes
8. WooCommerce theme
9. Building Themes
10. Installing plugins
11. Building Plugins
12. Widgets
13. Making Forms
14. Database Extraction

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Web Development with Code igniter

Objective

In this Code Igniter course, you will learn how to use Code Igniter Framework step by step. The course starts off with downloading Code Igniter and installing the software on your device. As you move ahead in the course, you will learn:

About Code Igniter's User Interface. Understand URL pattern under Code Igniter.

The functions of the controller. How to integrate templates into projects.

How to use Models under Code Igniter.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

Elislab User Guide

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Development with Code igniter

Course Framework

1. What is .htaccess
2. configuration
3. Code igniter Controller
4. Code igniter Model
5. Code igniter Views
6. Helper Functions
7. Encryption
8. Building a Blog Website

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Development with Code igniter

List of Practical

1. Introduction
2. The Plan
3. The Model
4. The Controller
5. The View
6. The Model View Controller Concept
7. The Software Architecture & Design Pattern
8. Business Logic Concept
9. Building a Blog Website
10. Creating Database & Users Table
11. Creating Orders & Cart Table
12. Creating Products, Messages & Password Reset Table

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Third Year

Duration: 12 Months Total Marks: 900

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Islamiat & Pakistan Studies

اسلامیات و مطالعہ پاکستان

نصاب (سال سوئم)

حصہ اول اسلامیات

حصہ دوم مطالعہ پاکستان

کل وقت: 100 گھنٹے

موضوعات:

1- قرآن مجید

سورۃ الفاتحہ۔ آیۃ الکرسی۔ سورۃ البقرۃ کی آخری آیات از امن الرسول سے تا آخر اور سورۃ الفلق مع ترجمہ و تشریح

سال سوئم

حصہ اول اسلامیات

تدریس مقاصد

قرآن حکیم

عمومی مقصد: منتخب سورتوں اور آیات کی روشنی میں اسلام کے بنیادی مقاصد اور عبادات بیان کر سکے

خصوصی مقاصد: طالب علم اس قابل ہو جائے گا کہ

سورۃ الفاتحہ: آیۃ الکرسی۔ سورۃ البقرۃ کی آخری آیات از امن الرسول سے اور سورۃ الفلق کا ترجمہ و تشریح کر سکے

طالب علم درج ذیل کا مفہوم بیان کر سکے

- ☆ رب العالمین صرف اللہ تعالیٰ ہے
- ☆ اللہ رحم کرنے والا ہے
- ☆ قیامت کے دن بادشاہی اللہ کی ہو گی
- ☆ عبادت اور استعانت کا حقدار صرف اللہ ہے

طالب علم درج ذیل کا مفہوم بیان کر سکے

- ☆ اللہ پاک ہر عیب سے پاک ہے
- ☆ اللہ کے اسمائے حسنہ حق اور قیوم ہیں
- ☆ تعلیم انبیاء پر ایمان لانا ضروری ہے
- ☆ رسول، ملائکہ، کتب سماویہ پر ایمان لانا فرض ہے
- ☆ اطاعت حقیقی صرف اللہ کے لیے ہے
- ☆ اسلامی اخلاقیات پر عمل کرنا انسانی بہبود میں ہے
- ☆ کفر کو اللہ کی مدد کے بغیر شکست نہیں دی جا سکتی
- ☆ اللہ ایک ہے
- ☆ اللہ کسی کا محتاج نہیں نہ اس کا کوئی شریک ہے

منتخب احادیث

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

خصوصی مقصد:

- ☆ 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
- ہمسایوں کے حقوق بیان کر سکے
- اسلام میں حقوق و فرائض ادائیگی 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 درگزر 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 قدروں کو اپنا کر مثالی معاشرہ پیدا کر سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

نصاب (سال سوئم)

مطالعہ پاکستان

حصہ دوئم

کل وقت: 20 گھنٹے

موضوعات

- ☆ قیام پاکستان
- ☆ باؤنڈری کمیشن
- ☆ ریڈ کلف ایوارڈ
- ☆ تقسیم بنگال و کلکتہ
- ☆ تقسیم پنجاب
- ☆ مسئلہ مہاجرین
- ☆ ریاست کا الحاق
- ☆ ریاست جموں و کشمیر
- ☆ نہری پانی کا تنازعہ
- ☆ قرار داد مقاصد
- ☆ علماء کے بائیس نکات
- ☆ 1962-1956 اور 1973 کے دساتیر کی اسلامی دفعات
- ☆ پاکستان کا محل وقوع اور اس کی جغرافیائی اہمیت
- ☆ قدرتی وسائل (تیل۔ گیس۔ کوئلہ)

مطالعہ پاکستان (حصہ دوئم)

قیام پاکستان

تدریس مقاصد

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

☆ خصوصی مقصد:

☆ باؤنڈری کمیشن تشکیل اور اس کے فرائض بیان کر سکے

☆ ریڈ کلف 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 بارہ میں تفصیل بیان کر سکے

☆ ریاست جموں کشمیر کے بارے میں بیان کر سکے

☆ نہری پانی کے تنازعہ کو بیان کر سکے

☆ قرار داد 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 بارہ میں بیان کر سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

(غیر مسلم طلباء کے لئے)

نصاب اخلاقیات

سال سوئم

کل وقت: 20

موضوعات

☆ احساس ذمہ داری

☆ مثبت ذہن

☆ عدل و انصاف

☆ قومی خدمت کا جذبہ

☆ ذکر و نظر کی پاکیزگی

☆ احترام آدمیت

☆ شائستگی

☆ عفو و درگزر

☆ بردباری

☆ خود انحصاری

☆ اثر و نفوذ

☆ جامعیت

☆ اپنی ذات کی معرفت (بذریعہ ہم عمر طلباء۔ اساتذہ۔ اہم شخصیات ادارہ)

Omni Academy

Diploma Software Engineering

Detailed Course Outline

(غیر مسلم طلباء کے لئے)

نصاب اخلاقیات

سال سوئم

تدریس مقاصد

عمومی مقصد: ملکی ترقی کے لیئے اعلی اوصاف کے ساتھ بہتر طور پر ملک و ملت کی خدمت کر سکے

خصوصی مقاصد: طالب علم اس قابل ہو گا کہ

- ☆ موضوعات کا مطلب بیان کر سکے
- ☆ عملی زندگی سے مثالوں کی نشاندہی کر سکے
- ☆ موضوعات کی اہمیت بیان کر سکے
- ☆ اپنی شخصیت اور معاشرے پر موضوعات کے مطابق اثرات پیدا کرنے کے طریقے بیان کر سکے
- ☆ مثبت ذہن کے ساتھ کام کر سکے
- ☆ عدل و انصاف سے ادارہ میں' دفتر میں بہتر ماحول پیدا کر سکے
- ☆ ماحول کو اخلاقی طور پر پاکیزہ بنائے
- ☆ کارکنوں کی بہتر طور پر دل جوئی کر سکے
- ☆ کارکردگی میں اضافہ کر سکے
- ☆ باہمی احترام کی برکات سے استفادہ کر سکے

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Technical Report Writing

Objective

Third English course in this technology program. It aims to provide students with opportunity to sharpen their skills in using the English language through writing technical reports. It covers the basics of technical writing, techniques, document design, applications of technical writing and oral reports. It is theory class.

At the end of the course the students are expected to be able to

1. Understand the basic techniques of technical writing.
2. Use these techniques to write readable technical report
3. Compose and write technical reports
4. Present effective oral reports
5. Write legibly in English language
6. Integrate English language as second language

Course Duration

Theory	32 Hours	One hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Reporting Technical Information, 7Ed., K. Houp, T. Pearsall, et. al., MacMillan
2. Writing by Design, A Handbook for Technical Papers, M. Greene, J. Ripley, Prentice Hall
3. Strategies for Technical Writing, A Handbook with Readings, M. Lay, Holt Rinehart Winston

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Technical Report Writing

Course Framework

1. Introduction to Technical Writing
- 1.1. Substance of Technical Writing
- 1.2. Nature of Technical Writing
- 1.3. Qualities of Good Technical Writers
- 1.4. Qualities of Good Technical Writing

2. Fundamentals of Technical Writing
- 2.1. Composing
- 2.2. Cooperative Writing
- 2.3. Readers of Technical Writing
- 2.4. Collecting and Verifying Information
- 2.5. Readable Style

3. Techniques of Technical Writing
- 3.1. Informing
- 3.2. Defining
- 3.3. Describing
- 3.4. Arguing

4. Document Design in Technical Writing
- 4.1. Document Design
- 4.2. Design Elements of Reports
- 4.3. Graphical Elements of Reports

5. Application of Technical Writing
- 5.1. Correspondence
- 5.2. Instructions
- 5.3. Proposals
- 5.4. Progress Report
- 5.5. Feasibility Report

6. Oral Reports
- 6.1. Preparations
- 6.2. Delivery Techniques
- 6.3. Presentation
- 6.4. Visual Aids

Omni Academy

Diploma Software Engineering

Detailed Course Outline

LEARNING OBJECTIVES

1. Introduction to Technical Writing
- 1.1. Differentiate technical writing from other forms of writing
- 1.2. Describe the nature of technical writing
- 1.3. List the characteristics of good technical writer
- 1.4. Describe the qualities of good technical writing

2. Fundamentals of Technical Writing
- 2.1. Compose good technical report
- 2.2. Identify the topic and purpose of a technical writing
- 2.3. Draft and revise technical report
- 2.4. Use fundamentals of technical writing to write good report
- 2.5. Plan a technical writing with several writers
- 2.6. Identify different readers of technical writers
- 2.7. Search literature for topics in technical writing
- 2.8. Write letter of inquiry
- 2.9. Write report with list and tables
- 2.10. Compose technical report that is grammatically correct and readable

3. Techniques of Technical Writing
- 3.1. Write readable report that informs
- 3.2. Use visual language, analogy, and process description to write technical report
- 3.3. Write readable report that define and describe
- 3.4. Write readable report that describe a process
- 3.5. Write readable and persuasive report that argue
- 3.6. Compose technical writing that persuade

4. Document Design in Technical Writing
- 4.1. Use correct formatting for technical writing
- 4.2. List the elements of a report
- 4.3. Describe each element of a report
- 4.4. Write report that has all the elements of report
- 4.5. Use correctly documentation formats in technical writing

5. Application of Technical Writing
- 5.1. Identify different forms of technical writing
- 5.2. Write readable correspondence
- 5.3. Write readable Instructions
- 5.4. Write readable proposals
- 5.5. Write readable progress report
- 5.6. Write feasibility report

6. Oral Reports
- 6.1. Describe elements in preparing an oral report
- 6.2. Identify different techniques of oral delivery of report
- 6.3. Present report with visual aids

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Management

Objective

Introduction on business management. It aims to prepare students to work effectively in business and industry. It discusses basic economics principles and organization management as well as skills in becoming an entrepreneur. It is pure class discussion.

At the end of the course the students are expected to be able to

1. Understand the basic concepts and principles of economics, business management and organization.
2. Apply management concepts in business organization
3. Use economic principles and business management to organize own business
4. Recognize the importance of economics and management in daily life

Course Duration

Theory	32 Hours	One hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks 100 Marks

Books

1. Business Organization, Nisar-ud-Din, Aziz Publisher, Lahore
2. Introduction to Business, M. Saeed Nasir, Ilmi Kitab Khana, Lahore.
3. An Introduction to Modern Economics, S.M. Akhtar, United Limited, Lahore.

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Management

Course Framework

1. Economics
- 1.1. Definition: Adam Smith, Alfred Marshall, Prof. Robins
- 1.2. Nature and scope
- 1.3. Importance for Technicians

2. Basic Concepts of Economics
- 2.1. Utility
- 2.2. Income
- 2.3. Wealth
- 2.4. Saving
- 2.5. Investment
- 2.6. Value.

3. Demand and Supply
- 3.1. Definition of Demand
- 3.2. Law of Demand
- 3.3. Definition of Supply
- 3.4. Law of Supply

4. Factors of Production
- 4.1. Land
- 4.2. Labour
- 4.3. Capital
- 4.4. Organization

5. Business Organization
- 5.1. Sole Proprietorship
- 5.2. Partnership
- 5.3. Joint Stock Company

6. Entrepreneurial Skills
- 6.1. Preparing, Planning, Establishing, Managing, Operating and Evaluating
- 6.2. Relevant Resources in Small Business
- 6.3. Business Opportunities, Goal Setting
- 6.4. Organizing, Evaluating and Analysing Opportunity and Risk Tasks

7. Scale of Production
- 7.1. Meaning and its Determination
- 7.2. Large Scale Production
- 7.3. Small Scale Production

8. Economic System
- 8.1. Free Economic System.
- 8.2. Centrally planned economy.
- 8.3. Mixed Economic System

9. Money
- 9.1. Barter System and its Inconveniences
- 9.2. Definition of Money and its Functions

10. Bank
- 10.1. Definition
- 10.2. Functions of a Commercial Bank
- 10.3. Central Bank and its Functions

11. Cheque
- 11.1. Definition
- 11.2. Characteristics and Kinds of cheque
- 11.3. Dishonour of Cheque

12. Financial Institutions
- 12.1. IMF
- 12.2. IDBP
- 12.3. PIDC

13. Trade Union
- 13.1. Introduction and Brief History
- 13.2. Objectives, Merits and Demerits
- 13.3. Problems of industrial Labour

14. International Trade
- 14.1. Introduction
- 14.2. Advantages and Disadvantages

15. Management
- 15.1. Meaning
- 15.2. Functions

16. Advertisement
- 16.1. The Concept, Benefits and Draw-Backs
- 16.2. Principal Media Used in Business World

17. Economy of Pakistan
- 17.1. Introduction
- 17.2. Economic Problems and Remedies

Omni Academy

Diploma Software Engineering

Detailed Course Outline

LEARNING OBJECTIVES

1. Economics
- 1.1. Understand the Importance of Economics.
- 1.2. State definition of economics
- 1.3. Explain nature and scope of economics.
- 1.4. Describe importance of study of economics for technicians.

2. Basic Concepts of Economics
- 2.1. Understand Basic Terms Used in Economics
- 2.2. Define basic terms, utility, income, wealth, saving, investment and value.
- 2.3. Explain the basic terms with examples

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

4. Factors of Production
- 4.1. Understand the Factors of Production
- 4.2. Define the four factors of production.
- 4.3. Explain labour and its features.
- 4.4. Describe capital and its peculiarities.

5. Business Organization
- 5.1. Understand Forms of Business Organization
- 5.2. Describe sole proprietorship, its merits and demerits.
- 5.3. Explain partnership, its advantages and disadvantages.
- 5.4. Describe joint stock company, its merits and demerits.
- 5.5. Distinguish public limited company and private limited company.

6. Entrepreneurial Skills
- 6.1. Understand Entrepreneurial Skills
- 6.2. Explain preparing, planning, establishing and managing small business
- 6.3. Explain evaluating all relevant resources
- 6.4. Describe organizing analysing and innovation of risk of task

7. Scale of Production
- 7.1. Understand Scale of Production
- 7.2. Explain scale of production and its determination.
- 7.3. Describe large-scale production and it merits.
- 7.4. Explain small scale of production and its advantages and disadvantages.

8. Economic System
- 8.1. Understand Different Economic Systems

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

9. Money
9.1. Understand What Is Money
9.2. Define money
9.3. Explain barter system and its inconveniences.
9.4. Explain functions of money.

10. Bank
10.1. Understand Bank and Its Functions
10.2. Define bank.
10.3. Describe commercial bank and its functions.
10.4. State central bank and its functions.

11. Cheque
11.1. Understand Cheque and Dishonour of Cheque
11.2. Define cheque.
11.3. Enlist the characteristics of cheque.
11.4. Identify the kinds of cheque.
11.5. Describe the causes of dishonour of a cheque.

12. Financial Institutions
12.1. Understand Financial Institutions
12.2. Explain IMF and its objectives.
12.3. Explain organizational set up and objectives of IDBP.
12.4. Explain organizational set up and objectives of PIDC.

13. Trade Union
13.1. Understand Trade Union, Its Background and Functions
13.2. Describe brief history of trade union.
13.3. State functions of trade union.
13.4. Explain objectives, merits and demerits of trade unions.
13.5. Enlist problems of industrial labour.

14. International Trade
14.1. Understand International Trade
14.2. Explain international trade.
14.3. Enlist its merits and demerits.

15. Management
15.1. Understand Management
15.2. Explain meaning of management.
15.3. Describe functions of management.
15.4. Identify the problems of business management.

16. Advertisement

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

17. Economy of Pakistan
17.1. Understand the Economic Problems of Pakistan.
17.2. Describe economy of Pakistan
17.3. Explain economic problems of Pakistan
17.4. Explain remedial measures for economic problems of Pakistan

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Programming in C#

Objective

The objective of teaching C# is to make students familiar with the coding concepts of C# programming. The basic knowledge of C# like loops, OOP principals in C# and data type.

This will help students in the later part when we will learn how to code in asp.net framework.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Programming in C#	Vincent Varallo

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Programming in C#

Course Framework

1. Data Types in C#
2. Operators and Expressions
3. Control Structures
4. Objects
5. Classes
6. Inheritance
7. Polymorphism
8. Classes
9. Methods
10. Constructors and Initialization
11. Static Fields and Methods
12. Constant
13. Parameter Passing
14. Method Overloading
15. Method Overriding
16. Operator Overloading
17. Arrays
18. Random Number Generation
19. Jagged Arrays
20. Rectangular Arrays
21. Indexers
22. Formatting and Conversion

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Programming in C#

List of practical

1. Fibonacci Series
2. Prime number
3. Palindrome number
4. Factorial
5. Armstrong number
6. Sum of Digits
7. Reverse Number
8. Swap two numbers without using third variable
9. Decimal to Binary
10. Alphabet Triangle
11. Number Triangle
12. Fibonacci Triangle
13. Number in Characters

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Web Programming in ASP.NET

Objective

To, introduce the students with the visual studio framework. How to create web page, forms in asp.net framework. Working with different layout. Creating sessions and destroying sessions. Creating views, controller, in asp.net.

These server-side technologies are important contributions to the development of the Web. Amazon.com, eBay.com, and many other popular web sites use ASP.NET as the framework for their site; without ASP.NET it would not be possible.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Pro ASP.NET MVC 5	Adam Freeman

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Programming in ASP.NET

Course Framework

1. Working with Visual Studio
2. Introduction to Web form
3. Creating a Web form
4. Designing a web page
5. Different Layouts
6. SESSIONS
7. Creating sessions
8. Destroy sessions
9. COOKIES
10. Creating cookies
11. Destroy cookies
12. AJAX in ASP.Net
13. Creating Views
14. Creating Controller
15. Developing a Website

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Web Programming in ASP.NET

List of Practical

1. Working with Visual Studio
2. Introduction to Web form
3. Creating a Web form
4. Designing a web page
5. Different Layouts
6. SESSIONS
7. Creating sessions
8. Destroy sessions
9. COOKIES
10. Creating cookies
11. Destroy cookies
12. AJAX in ASP.Net
13. Creating Views
14. Creating Controller
15. Developing a Website

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Database Development in Microsoft SQL Server

Objective

To, introduce the basic knowledge of database management system. How to Create, Plan & Manage Databases?

To, provide the students with the technical and administrative skills needed by the systems analyst.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Querying Microsoft SQL Server 2012	Dejan Sarka, Itzik Ben-Gan, and Ron Talmage

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Database Development in Microsoft SQL Server

Course Framework

1. Installing SQL SERVER
2. Managing User
3. Database creation
4. Table Creation
5. Select Records
6. Update Records
7. Delete Records
8. Math Functions in SQL Server
9. Creating Views
10. Creating Stored Procedures
11. Date Functions
12. Introduction to ERD
13. ERD Symbolic Presentation
14. Relationship between Tables
15. Cardinality
16. Normalization
17. Backup a database
18. Restoring a database

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Database Development in Microsoft SQL Server

List of Practical

1. Installing SQL SERVER
2. Managing User
3. Database creation
4. Table Creation
5. Connecting database
6. Insert Records
7. Select Records
8. Update Records
9. Delete Records
10. Math Functions in SQL Server
11. Creating Views
12. Creating Stored Procedures
13. Date Functions
14. Introduction to ERD
15. Making of ERD
16. ERD Symbolic Presentation
17. Creating relationship between Tables
18. Cardinality
19. Normalization a database (1NF, 2NF, 3NF)
20. Backup a database
21. Restoring a database

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Oracle ERP Essential

Objective

ERP System Implementation Methodology training helps you build a functional foundation for any ERP Fundamentals course. It's ideal for those who have interest in understanding ERP systems.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Oracle User Guide	Chuck Murray

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Essential

Course Framework

Introduction to ERP
Define ERP and understand
What is new about ERP today?
Characteristics of an ERP System, ERP Pitfalls
Cost drivers to be considered for ERP
ERP Implementation
Typical Costs of implementing a new ERP system, such as initial acquisition & installation costs, and ongoing costs, Benefits of an ERP system.
Understanding importance of process in ERP systems, ASIS and TOBE stages

Navigating in ERP Applications
Logon and off of ERP Applications
Using forms & menus
Entering data using forms
Searching forms
Accessing Online Help
Introduction to ERP Applications

E-Business Suite Overview
Understanding the ERP Architecture
Understanding ERP Application

Fundamentals of Multiple-Organization
What Is Multi-Org?
Types of organizations in the Multi-Org model

ERP Key Process Flow
Overview of E-Business Suite business flows and Integration
Shared Entities and Integration
Entities - Suppliers and Customers

Fundamentals of ERP System Administration
Application Security Overview
Function Security
Data Security
Profile Options

Fundamentals of Flex fields
Basics of Flex fields
Define Value sets
Define Key Flex fields
Define Descriptive Flex fields

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Essential

List of practical

1. Log in to Oracle Applications
2. Navigate from Personal Home Page to Applications
3. Choose a responsibility
4. Create Favorites and set Preference
5. Use Forms and Menus
6. Enter data using Forms
7. Search for data using Forms
8. Access online Help
9. Run and monitor Reports and Programs
10. Log out of Oracle Applications
11. Describe Flex fields and their components
12. Identify the steps to implement a Flex field
13. Define value sets and values
14. Define Key Flex fields
15. Define Descriptive Flex fields

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Oracle ERP Financials

Objective

When organizations need a solid way to manage their finances, Financial Management solutions are trusted worldwide. With ERP Financial Management Training, learn how these tools can streamline financial operations, improve financial reporting accuracy. The Financials training program is designed to educate and make students aware of ERP system key functionalities and Financials Management core functionalities (GL, AP, AR) through this Essentials training program.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Oracle User Guide	Chuck Murray

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Financials
Course Framework

Record Accounting Information

Enter journal entries

Describe how journal entries are positioned in the accounting cycle

Describe the different Journal Posting options

Import journal entry information from sub ledgers

Understand journal reversal and postings

Review Accounting Information

Search journal entries

Define how to perform account Inquiries

Drilldown to sub ledger applications

Understand Multi Currency Functionality

Explain Multi-Currency concepts

Perform foreign currency journals entry

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Financials

List of practical

1. Enter journal entries
2. Search journal entries
3. Define how to perform account Inquiries
4. Drilldown to sub ledger applications
5. Chart of Accounts
6. Global Chart of Accounts
7. Regulated Charts of Accounts
8. Currency
9. Transaction Currency
10. Primary Currency
11. Reporting Currency
12. Calendars
13. Accounting Conventions
14. Subledger Accounting in Oracle Financials
15. Some Important Features of Oracle Subledger Accounting
16. Setting Up Your Accounting: Accounting Setup Manager
17. Overview of the Accounting Setup Manager
18. Legal Environment Considerations
19. The Corporate View
20. Accounting Consolidation in Oracle Ledgers
21. Financial Consolidation Hub
22. Ledgers and Ledger Sets with Financial Statement Generator
23. Global Consolidation System

Omni Academy

Diploma Software Engineering

Detailed Course Outline

SUMMARY

Course Title: Oracle ERP Supply Chain

Objective

Supply Chain Management can automate detailed processes to drive cost savings and efficiency over business' supply chain. With Supply Chain Management Training, learn how this cohesive yet flexible solution can deliver embedded analytics and adjust as conditions change. By attending this program, a combination of lecture, hands-on exercises, Students will gain valuable insight into the Supply chain key features and functions. The focus of the program will be to educate students on modern ERP Applications.

Course Duration

Theory	32 Hours	One hours per week
Practical/Lab	96 Hours	Three hours per week

Assessment Approach

Total assessment based on final Examination

Total Marks	100 Marks

Books

Oracle User Guide	Chuck Murray

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Supply Chain

Course Framework

Payables Overview
Describe the Payables process flow
Describe the key areas in the Payables process
Identify Payables integration points

Understanding Invoices
Enter invoices and invoice distributions
Validate invoices
Apply and release holds
Describe key reports

Creating and Maintaining Suppliers
Define suppliers and supplier sites
Identify key reports related to suppliers and supplier sites
Describe setup options - Purchasing
Describe setup options - Receiving

Payments
Describe the payment process
Enter single payments
Process multiple payments
Review and adjust/void payments
Use key standard reports

Period Close
Describe activities to be performed during the Period Close process in Payables
Identify key programs and reports related to Period Close
Explain the prerequisites for the Period Close Process Transfer from Payables to General Ledger

Omni Academy

Diploma Software Engineering

Detailed Course Outline

Oracle ERP Supply Chain

List of practical

1. Setup Steps for the Source
2. Setup Steps for the Destination
3. Business Flows
4. Planning Cycle
5. Specify Sources of Demand
6. Run Collections
7. Create a Plan
8. Launch the Plan
9. Review Key Performance Indicators (KPIs)
10. Review Exceptions
11. Review Workflow Notifications
12. View Pegged Supply and Demand
13. Modify the Plan Environment
14. Run Net Change
15. Release or Firm Orders

Omni Academy

Diploma Software Engineering

Detailed Course Outline