

نی پنا ی  
1 0 1  
کس وقت: 20 بجے

نصاب (اسل سوئٹ)

حمد اور اسلامیات

حصہ دوم مطالعہ پاکستان

موضوعات

قرآن مجید

- 1- سورة الفاتحة۔ ایتہ الہی۔ سورة البقرة کی تخری آیات از اس الرسل سے آآخر کور سورة خلاق مع ترجمہ تفسیر
- 2- ابن عقیب الاثر۔ مع ترجمہ و تفسیر
- 3- بنی الاسلام علی خمس شہادت لاله الاکوام اقلیم ائصلو ته وابتدا انز کوة و حج لبین و صوم رمضان
- 4- لذین انصبتہ
- 5- لمنشاء مومن
- 6- للمومن علی المومن سنت خصای يعود ماذا مرض و تشہد لزامات و وجیہ لنا دعا
- 7- لبسم عبہ انا قلبہ و لیسنتہ انا عظمس و فصیحطہ انا غاب اوشہد
- 8- لا تخن من خنک
- 9- لا یفخس الحنثہ قاطع
- 10- ان اللہ حرم عنیکم عقوق لمہات و اضاعتہ اعمال
- 11- لیسر اولاتعسر اولاتنفرا
- 12- دلق طعم الایمان من مرضس باللہ و بالاسلام دین بمجمد نبیا
- 13- لوصن الذکر لاله الا اللہ
- 14- حقوق و فرائض
- 15- حصن تعلیم بطور فرس۔ والدین اور کولاد کے حقوق و فرائض۔ ہمدیہ کے حقوق
- 16- اسلام کی اخلاقی اقدار
- 17- غم اور گداز۔ ایمانے عمد۔ امنوت۔ ایماہ و قرینی

سال سوئم  
حصہ اول اسلامیات

### تدریس مقاصد

قرآن حکیم

- عمومی مقصد: منتخب سورتوں اور آیات کی روشنی میں اسلام کے بنیادی مقاصد اور عبادت جان سکے  
خصوصی مقاصد: طالب علم اس قتل ہو جائے گا کہ  
سورۃ الفاتحہ: آیتہ الکرسی۔ سورۃ بقرۃ کی آخری آیات از امن الرسول سے اور سورۃ انفلاق 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 پوشمائی اللہ کی ہوگی
  - ☆ عبادت اور استغاثت 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 ملا کہ کتب سلوید پر ایمان لانا فرض ہے
  - ☆ اعلاعت حقیقی صرف اللہ کے لیے ہے
  - ☆ اسلامی احکامات پر عمل کرنا انسانی بسلا میں ہے
  - ☆ کفر کو اللہ کی مدد کے بغیر شکست نہیں دی جاسکتی
  - ☆ 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

- ۱۶۰ احادیث کی تشریح کر سکے
- ۱۶۱ معاشرتی اور انفرادی زندگی میں احادیث سے راہنمائی حاصل کر سکے
- حقوق و فرائض**
- عمومی مقصد: اسلامی معاشرے کا ایک اہم فرزند بن سکے
- خصوصی مقاصد:
- ۱۶۲ والدین کے حقوق و فرائض بیان کر سکے
- ۱۶۳ بھائیوں کے حقوق بیان کر سکے
- ۱۶۴ اسلام میں حقوق و فرائض کی افہام کی صورت میں اپنے اندر خدمتِ خلق کا جذبہ پیدا کر سکے
- اسلامی اقدار
- عمومی مقصد: طالب علم بن سکے گا کہ تعلیم کا مقصد حسنِ اخلاق سے متصف ہوگا ہے
- خصوصی مقاصد
- ۱۶۵ اخلاق کے معنی و مفہوم کو بیان کر سکے
- ۱۶۶ اسلام میں حسنِ اخلاق کی اہمیت بیان کر سکے
- ۱۶۷ قرآن و سنت کی روشنی میں مہربانہ استقبال کی اہمیت بیان کر سکے
- ۱۶۸ اسلام میں غفور و رحیم کو اہمیت بیان کر سکے
- ۱۶۹ انبیاءِ عہد کی اہمیت بیان کر سکے
- ۱۷۰ اہل بیت کے معنی و مفہوم کو بیان کر سکے
- ۱۷۱ اہل بیت اسلامی کی اہمیت بیان کر سکے
- ۱۷۲ اسلام کی اعلیٰ قدر کو اپنا کر مثالی معاشرہ پیدا کر سکے

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GEN 3II

نصاب (سہل سوئم)  
مظاہرہ پاکستان  
حصہ دوم

### موضوعات

- ☆ قیام پاکستان
- ☆ پونڈری کمیشن
- ☆ ریڈ کلف ایوارڈ
- ☆ تقسیم بنگلہ و کلکتہ
- ☆ تقسیم پنجاب
- ☆ مسئلہ مہاجرین
- ☆ ریاست کالہاٹی
- ☆ ریاست جموں و کشمیر
- ☆ نسری پالی کا تنازعہ
- ☆ قرار داد مقاصد
- ☆ علماء کے بائیس نکات
- ☆ 1956-1962 اور 1973 کے دستاویز کی اسلامی دفعات
- ☆ پاکستان کا محل وقوع اور اس کی جغرافیائی اہمیت
- ☆ قدرتی وسائل (تیل، گیس، کوئلہ)

مطالعہ پاکستان (حصہ دوم)  
قیام پاکستان

تدریس مقاصد

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

☆ خصوصی مقاصد:

- ☆ باؤنڈری کمیشن تشکیل اور اس کے فرائض بیان کر سکے
- ☆ ریڈ کلف اور اس کے ایوارڈ کے بارے میں بیان کر سکے
- ☆ بنگل اور گلگت کی تقسیم کی وجوہات بیان کر سکے
- ☆ پنجاب کی تقسیم کی تفصیل بیان کر سکے
- ☆ مہاجرین کی آمد سے جو مسائل پیدا ہوئے انہیں بیان کر سکے
- ☆ ریاستوں کے الحاق کے بارے میں تفصیل بیان کر سکے
- ☆ ریاست جموں کشمیر کے بارے میں بیان کر سکے
- ☆ سرحدی پٹی 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-کونکر) کے بارے میں بیان کر سکے

## (غیر مسلم طلباء کے لئے)

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Gen 311

نصاب اخلاقیات	☆
سال سوئم	☆
موضوعات	☆
احساس ذمہ داری	☆
مثبت ذہن	☆
عدل و انصاف	☆
قومی خدمت کا جذبہ	☆
ذکر و نظریہ پاکیزگی	☆
احرام آدمیت	☆
شائستگی	☆
خود درگزر	☆
بردباری	☆
خود انحصاری	☆
اثر و نفوذ	☆
جامعیت	☆
اپنی ذات کی معرفت (پذیرید ہم عمر طلباء اساتذہ اہم شخصیات لواریہ)	☆

(غیر مسلم طلباء کے لئے)

نصاب اخلاقیات

سل سوئم

### تدریس مقاصد

- ☆ عمومی مقصد: ملکی ترقی کے لیے اعلیٰ 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

Course Code: **Eng 311**  
Course Title: **Technical Report Writing**

<b>T</b>	<b>P</b>	<b>C</b>
1	0	1

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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.

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### **Course Objectives**

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

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

### **COURSE OUTLINE**

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<b>Contents</b>	<b>Hours</b>
<b>1. Introduction to Technical Writing</b>	<b>2</b>
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	
<b>2. Fundamentals of Technical Writing</b>	<b>6</b>
2.1. Composing	
2.2. Cooperative Writing	
2.3. Readers of Technical Writing	
2.4. Collecting and Verifying Information	
2.5. Readable Style	
<b>3. Techniques of Technical Writing</b>	<b>6</b>
3.1. Informing	
3.2. Defining	
3.3. Describing	
3.4. Arguing	



<b>4. Document Design in Technical Writing</b>	<b>6</b>
4.1. Document Design	
4.2. Design Elements of Reports	
4.3. Graphical Elements of Reports	
<b>5. Application of Technical Writing</b>	<b>8</b>
5.1. Correspondence	
5.2. Instructions	
5.3. Proposals	
5.4. Progress Report	
5.5. Feasibility Report	
<b>6. Oral Reports</b>	<b>4</b>
6.1. Preparations	
6.2. Delivery Techniques	
6.3. Presentation	
6.4. Visual Aids	

**Total Hours: 32**

## References

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

## Eng 311 – Technical Report Writing

### 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

## DAE in Computer Information Technology

Course Code: <b>Mgt 331</b>	<b>T</b>	<b>P</b>	<b>C</b>
Course Title: <b>Management</b>	1	0	1

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Introductory course 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.

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### Course Objectives

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

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

### COURSE OUTLINE

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<b>Contents</b>	<b>Hours</b>
<b>1. Economics</b>	<b>2</b>
1.1. Definition: Adam Smith, Alfred Marshall, Prof. Robins	
1.2. Nature and scope	
1.3. Importance for Technicians	
<b>2. Basic Concepts of Economics</b>	<b>1</b>
2.1. Utility	
2.2. Income	
2.3. Wealth	
2.4. Saving	
2.5. Investment	
2.6. Value.	
<b>3. Demand and Supply</b>	<b>2</b>
3.1. Definition of Demand	
3.2. Law of Demand	
3.3. Definition of Supply	
3.4. Law of Supply	

<b>4. Factors of Production</b>	<b>2</b>
4.1. Land	
4.2. Labour	
4.3. Capital	
4.4. Organization	
<b>5. Business Organization</b>	<b>3</b>
5.1. Sole Proprietorship	
5.2. Partnership	
5.3. Joint Stock Company	
<b>6. Entrepreneurial Skills</b>	<b>4</b>
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 Analyzing Opportunity and Risk Tasks	
<b>7. Scale of Production</b>	<b>2</b>
7.1. Meaning and its Determination	
7.2. Large Scale Production	
7.3. Small Scale Production	
<b>8. Economic System</b>	<b>3</b>
8.1. Free Economic System.	
8.2. Centrally planned economy.	
8.3. Mixed Economic System	
<b>9. Money</b>	<b>1</b>
9.1. Barter System and its Inconveniences	
9.2. Definition of Money and its Functions	
<b>10. Bank</b>	<b>1</b>
10.1. Definition	
10.2. Functions of a Commercial Bank	
10.3. Central Bank and its Functions	
<b>11. Cheque</b>	<b>1</b>
11.1. Definition	
11.2. Characteristics and Kinds of cheque	
11.3. Dishonour of Cheque	
<b>12. Financial Institutions</b>	<b>2</b>
12.1. IMF	
12.2. IDBP	
12.3. PIDC	

<b>13. Trade Union</b>	<b>2</b>
13.1. Introduction and Brief History	
13.2. Objectives, Merits and Demerits	
13.3. Problems of industrial Labour	
<b>14. International Trade</b>	<b>2</b>
14.1. Introduction	
14.2. Advantages and Disadvantages	
<b>15. Management</b>	<b>1</b>
15.1. Meaning	
15.2. Functions	
<b>16. Advertisement</b>	<b>2</b>
16.1. The Concept, Benefits and Draw-Backs	
16.2. Principal Media Used In Business World	
<b>17. Economy of Pakistan</b>	<b>1</b>
17.1. Introduction	
17.2. Economic Problems and Remedies	
	<b>Total Hours: 32</b>

## References

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

## **Mgt 331 - Management**

### **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 analyzing 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 its 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 Dishonor 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 dishonor of a cheque.

## **12. Financial Institutions**

- 12.1. Understand Financial Institutions
- 12.2. Explain IMF and its objectives.
- 12.3. Explain organisational set up and objectives of IDBP.
- 12.4. Explain organisational 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

Course Code: **CIT- 313**  
Course Title: **Network Administration**

**T**     **P**     **C**  
2     3     3

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Course on network administration using Microsoft NT operating system. It aims to provide students with practical exercise and knowledge on installing and operational administration of connected system. It covers all major topics of Microsoft NT. This comes with practical component to complement classroom discussion.

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### **Course Objectives**

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

- Understand basic concepts, architecture, organization and operational principles of Windows NT.
- Install and configure Windows NT
- Manage the resources network users using Windows NT
- Troubleshoot NT faults and correct them
- Run application programs in Windows NT
- Demonstrate motivation in managing users in a network

### **COURSE OUTLINE**

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<b>Contents</b>	<b>Hours</b>
<b>1. Introduction</b>	<b>4</b>
1.1. Networks for Companies	
1.2. Networks for People	
1.3. Social Issues of Networks	
1.4. The Concept of Networking	
1.5. Types of Networks	
<b>2. Microsoft Windows NT Server and Workstations</b>	<b>8</b>
2.1. Windows 95 and NT Workstation	
2.2. Windows NT Server	
2.3. Domains and Workgroups	
2.4. Architecture of Windows NT	
2.5. NT Memory Model	
2.6. Windows NT Interface	
2.7. Windows NT Explorer	
<b>3. Installation and Configuration</b>	<b>8</b>
3.1. Hardware Requirements	
3.2. Installation Process and De-installation of Windows NT	
3.3. Configuring Disks	

3.4. Control Panel	
3.5. Server-based Deployment	
3.6. Printing Management	
<b>4. Resources Management</b>	<b>10</b>
4.1. User and Group Accounts	
4.2. Account Policy, User Rights and Auditing	
4.3. User Profiles and System Policy	
4.4. Windows NT Directory Services	
4.5. Optimization Windows NT Server Directory Services	
4.6. File System Security and Sharing	
4.7. Resource Access on the Network	
4.8. Windows NT Server Tools	
4.9. Back Up and Recovery of Data	
<b>5. Connectivity</b>	<b>4</b>
5.1. Networking Using TCP/IP	
5.2. Windows NT and NetWare	
<b>6. Applications</b>	<b>8</b>
6.1. Application Environment	
6.2. Application Priorities	
6.3. Windows NT Task Manager	
<b>7. Monitoring and Optimization</b>	<b>10</b>
7.1. Performance Monitor	
7.2. Network Monitor	
7.3. Capacity Planning	
7.4. Performance Optimization	
<b>8. Troubleshooting</b>	<b>12</b>
8.1. Troubleshooting Process	
8.2. Resources for Troubleshooting	
8.3. Advance Troubleshooting	
8.4. Event Viewer	
8.5. Windows NT Diagnostics	
8.6. Registry Editors	

**Total Hours: 64**

## References

- **MSCE Study Guide**, Alan R. Carter, Comdex Computer Publishing
- **Supporting Microsoft Windows NT Server 4.0**, Microsoft Press
- **Administering Microsoft Windows NT Workstation 4.0**, Microsoft Press
- **TCP/IP Training**, Microsoft Press
- **Networking Essentials, 2Ed**, Microsoft Press

**LEARNING OBJECTIVES**

**1. Introduction**

- 1.1. Describe the purpose of networks in organization and people
- 1.2. Discuss the social issues of networks
- 1.3. Explain the concept of networking
- 1.4. Enumerate the type of networks
- 1.5. Describe each type of network

**2. Microsoft Windows NT Server and Workstations**

- 2.1. Describe Windows OS for workstation
- 2.2. Describe NT server
- 2.3. Relate Windows OS of workstation and Windows NT of server
- 2.4. Define domains and workgroups
- 2.5. Describe the architecture of Windows NT
- 2.6. Explain memory model of Windows NT
- 2.7. Identify parts of Windows NT
- 2.8. Describe and navigate the interface of Windows NT
- 2.9. Describe and navigate the interface of Window NT Explorer
- 2.10. Use Windows NT Explorer

**3. Installation and Configuration**

- 3.1. Identify the minimum hardware requirements of Windows NT
- 3.2. Suggest optimum hardware requirements of Windows NT
- 3.3. Describe the installation process of Windows NT
- 3.4. Walk through the installation process of Windows NT
- 3.5. Remove (uninstall) Windows NT from computer
- 3.6. Discuss disk requirement of Windows NT
- 3.7. Describe the file system of Windows NT
- 3.8. Configure disk for Windows NT
- 3.9. Identify parts of Windows NT control panel
- 3.10. Navigate the control panel
- 3.11. Deploy Windows NT from server or disk
- 3.12. Setup printer for Windows NT
- 3.13. Install print server
- 3.14. Configure hardware and software for Windows NT

**4. Resources Management**

- 4.1. Define user and group accounts
- 4.2. Organize the user and group accounts in Windows NT
- 4.3. Create and manage single user and group users in Windows NT

- 4.4. State clearly effective account policy to users
- 4.5. Identify the user rights
- 4.6. Audit users in the system
- 4.7. Create user profiles based on identified system policy
- 4.8. Describe directory system of Windows NT
- 4.9. Use directory services provided by Windows NT
- 4.10. Optimize the use of Windows NT server directory services
- 4.11. Plan for secure file system for Windows NT
- 4.12. Setup Windows NT file system for resource sharing
- 4.13. Setup and configure Windows NT for effective resource sharing of the network
- 4.14. Identify Windows NT server tools
- 4.15. Explain the functions of each tool of the server
- 4.16. Use effectively the server tools
- 4.17. Institute effective disaster recovery for Windows NT
- 4.18. Define policy for backing up system
- 4.19. Back up system for disaster recovery

## **5. Connectivity**

- 5.1. Describe TCP/IP
- 5.2. Explain IP addressing and IP routing
- 5.3. Install and configure Windows Internet Name Service
- 5.4. Troubleshoot common TCP/IP connectivity problems
- 5.5. Describe NetWare
- 5.6. Install and configure client service for NetWare
- 5.7. Access resource in NetWare servers
- 5.8. Troubleshoot common NetWare connectivity problems

## **6. Applications**

- 6.1. Enumerate application environment that may run in Windows NT
- 6.2. Describe the application environment that may run in Windows NT
- 6.3. Describe priorities of application
- 6.4. Define the priority of application that may run in Windows NT
- 6.5. Describe Windows NT Task Manager
- 6.6. Manage tasks running in Windows NT
- 6.7. Run application in Windows NT

## **7. Monitoring and Optimization**

- 7.1. Identify performance criteria of Windows NT
- 7.2. Explain the each performance criterion
- 7.3. Describe Windows NT Performance Monitor
- 7.4. Use Windows NT Performance Monitor
- 7.5. Plan for future expansion of system in Windows NT
- 7.6. Monitor the performance of Windows NT
- 7.7. Optimize the performance of Windows NT

## **8. Troubleshooting**

- 8.1. Describe the troubleshooting process
- 8.2. Identify common occurring run-time faults in Windows NT
- 8.3. Troubleshoot run-time Windows NT faults
- 8.4. Recover from run-time Windows NT faults
- 8.5. Identify tools used in troubleshooting
- 8.6. Use troubleshooting tools to recover from Windows NT run-time fault
- 8.7. Use Windows NT Event Viewer
- 8.8. Perform diagnostics of Windows NT
- 8.9. Describe Windows NT Registry
- 8.10. Use Windows NT registry editor to troubleshoot faults

## **CIT- 313– Network Administration**

### **LIST OF PRACTICALS**

1. Windows NT Workstation Installation
2. Windows NT Server Installation and Configuration
3. Hard Disk Partition Management
4. Exploring Control Panel
5. Local Printer Creation and Sharing
6. User and Group Account Management
7. Audit Implementation
8. Account Policy and User Rights Management
9. User Profile Implementation
10. System Policy Configuration
11. Directory Service Planning
12. Resource Sharing and Security
13. File and Folder Audit
14. Resource Access and Permission Problems Troubleshooting
15. Window NT Server Tools Installation
16. Backup Performance
17. WINDS and Microsoft DNS Server Implementation
18. TCP/IP Installation and Configuration
19. RAS and Dial-Up Networking Installation
20. Application Launching with Different Priorities
21. Performance Monitor
22. Bottleneck Search and Resolution
23. Windows NT Performance Optimization
24. Windows NT Troubleshooting

Course Code: **CIT- 323**  
Course Title: **Operating System**

**T**     **P**     **C**  
2     3     3

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A course on the main system software that manages the resources of the computer system. It aims to provide students with the understanding and operational principles of operating system. The course covers the issues of managing the resources of a computer by an operating and the implementation and techniques used by Unix/Linux system to address the issues. This comes with laboratory to enhance the classroom discussion.

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### **Course Objectives**

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

- Understand the concepts and issues of managing the resources of a computer by an operating system.
- Understand the operational principles and implementation of Unix/Linux/Linux operating system
- Use shell commands to administer the system.
- Run application programs in Unix/Linux/Linux environment
- Perform system administer
- Demonstrate motivation to use and administer systems in Unix/Linux/Linux platform

### **COURSE OUTLINE**

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<b>Contents</b>	<b>Hours</b>
<b>1. Computer System Structures</b>	<b>4</b>
1.1. Computer System Operation	
1.2. I/O Structure	
1.3. Storage Structure and Hierarchy	
1.4. Hardware Protection	
<b>2. Operating System Structures</b>	<b>10</b>
2.1. System Components	
2.1.1. Process Management	
2.1.2. Memory Management	
2.1.3. Disk and Storage Management	
2.1.4. File System	
2.2. OS Services and System Calls	
2.3. System Programs and Structure	
2.4. System Design and Implementation	



<b>3. Unix/Linux Implementation</b>	<b>6</b>
3.1. Logging In and Logging Out to the System	
3.2. Configuring the Environment and Managing the Password	
3.3. Unix/Linux Manual System	
3.4. Unix/Linux File System and File System Organization	
3.5. File Types, Names and Directories	
3.6. Managing Directories: File and Directory Permissions	
<b>4. Unix/Linux Commands</b>	<b>16</b>
4.1. User-Related, Locating and Search	
4.2. Usage Determination and Process-related Commands	
4.3. File and Directory Manipulation	
4.4. File Content and File Content Search	
4.5. Printing and Scheduling	
4.6. Storage and Status	
4.7. Miscellaneous Commands	
<b>5. Text Processing</b>	<b>6</b>
<b>6. Bourne Shells</b>	<b>6</b>
6.1. Introduction	
6.2. Bourne Shell Basics	
<b>7. System Administration</b>	<b>16</b>
7.1. System Administration Tasks	
7.2. Unix/Linux Installation Basics	
7.3. Resource and User Administration	
7.4. File System and Disk Administration	
7.5. Kernel Basics and Configuration	
7.6. System Accounting and Performance Monitoring	
7.7. Device and Mail Administration	
7.8. UUCP and FTP Services Administration	
7.9. Backing Up and Restoring the System	

**Total Hours: 64**

## References

- **Operating System Concepts, 5Ed.**, A. Silberschatz and P. Galvin, Addison-Wesley Publishing Co.
- **Unix/Linux Unleashed, 3Ed**, Robin Burk, et al., Sams Publishing
- **The Linux User's Guide**, Larry Greenfield
- **Unix System Management**, Robert King Ables
- **Red Hat Linux 6.0**, Red Hat Software, Inc.
- **Hand-on Unix: A Practical Guide with the Essentials**, Sobell
- **The Linux Users' Guide**, Larry Greefield

## **CIT- 323– Operating System**

### **LEARNING OBJECTIVES**

#### **1. Computer System Structures**

- 1.1. Describe the general operations of computer
- 1.2. Describe interrupts
- 1.3. Identify different I/O devices
- 1.4. Describe the structure of input/output system
- 1.5. Describe different storage devices
- 1.6. Explain the hierarchy of storage devices
- 1.7. Identify the protection issues encountered in a computer system
- 1.8. Describe protection methods of computer operation

#### **2. Operating System Structures**

- 2.1. List functions of an operating system
- 2.2. Describe the functions of an operating system
- 2.3. Explain memory management techniques.
- 2.4. Describe virtual memory
- 2.5. Describe hierarchical directory system.
- 2.6. Describe UNIX file system
- 2.7. Explain disk management system
- 2.8. Explain how the operating system manages the resources of a computer
- 2.9. Enumerate OS services and explain the service
- 2.10. Define system calls
- 2.11. Identify system programs that come with the operating system
- 2.12. Describe the functions of these system programs
- 2.13. Describe the general structure and architecture of an operating system
- 2.14. Illustrate the structure by diagrams
- 2.15. Discuss design goals of the operating system

#### **3. Unix/Linux Implementation**

- 3.1. Discuss the development of Unix/Linux development
- 3.2. Explain the design principles of Unix/Linux
- 3.3. Log in and log out in the system
- 3.4. Configure the user own environment
- 3.5. Change and manage own password
- 3.6. Use Unix/Linux help system (Manual System)
- 3.7. Characterize Unix/Linux file system and its organization
- 3.8. Name correctly file and directory
- 3.9. Create and delete files and directories
- 3.10. Set the permissions of files and directories

#### **4. Unix/Linux Basic Commands**

- 4.1. Invoke correctly Unix/Linux commands used in user and user-determination and file search
- 4.2. Invoke correctly Unix/Linux commands used in administration of own environment and process-related job
- 4.3. Use correctly Unix/Linux commands to manipulate files and directories
- 4.4. Use correctly Unix/Linux commands to search and view at contents of files
- 4.5. Print files using Unix/Linux commands
- 4.6. Use correctly Unix/Linux scheduling commands
- 4.7. Use correctly Unix/Linux storage and status commands
- 4.8. Invoke correctly text processing command
- 4.9. Use other miscellaneous commands available to Unix/Linux

#### **5. Text Processing**

- 5.1. Invoke vi editor
- 5.2. Compose text using vi editor
- 5.3. Describe different mode of vi editor

#### **6. Unix/Linux Shells**

- 6.1. Define Unix/Linux shells
- 6.2. Explain the functions of shell
- 6.3. Describe Bourne Shell of Unix/Linux
- 6.4. Use Bourne shell in Unix/Linux

#### **7. System Administration**

- 7.1. Describe Unix/Linux system administration
- 7.2. Describe tasks of Unix/Linux system administration
- 7.3. Identify hardware requirements of Unix/Linux system
- 7.4. Plan and Install Unix/Linux
- 7.5. Start up and shutdown Unix/Linux
- 7.6. Add and maintain new users in the system
- 7.7. Set permission to users
- 7.8. Manage and repair file systems
- 7.9. Create file systems
- 7.10. Describe kernel and its functions
- 7.11. Configure Unix/Linux kernel
- 7.12. Describe Unix/Linux system basic accounting
- 7.13. Set up accounting system in Unix/Linux
- 7.14. Describe performance monitoring in Unix/Linux
- 7.15. Use tools for monitoring performance of the system
- 7.16. Describe services facility provided by Unix/Linux
- 7.17. Describe device administrative tasks
- 7.18. Install printer to Unix/Linux system
- 7.19. Describe email facility of Unix/Linux

- 7.20. Describe mail transfer agents
- 7.21. Explain UUCP and FTP services
- 7.22. Describe FTP protocol
- 7.23. Setup and administer FTP services
- 7.24. Explain purpose of backup
- 7.25. Back up and restore Unix/Linux system

## **CIT- 323– Operating System**

### **LIST OF PRACTICALS**

1. Logging On and Logging Out in Unix/Linux System
2. Setting the password
3. Configuration of Own Environment
4. Using Manual Pages
5. Using User-related Commands login, rlogin, telnet, passwd, exit, which, whence, where, man
6. Using Process-related Commands: kill, nice, ps, jobs, wait, nonup, sleep,
7. Using File and Directory Commands: touch, chmod, chgrp, chown, rm, mv, cp, cat, rcp, ln, mkdir, rmdir, ls, find, file
8. Using File Content and Search Commands: more, less, tail, head, wc, read, od, pg, tee, vi, egrep, fgrep, strings
9. Using Printing and Scheduling Commands: cancel, lp, pr, lpstat, at, atq, crontab
10. Using Storage and Status Commands: compress, cpio, dd, pack, pcat, tar, uncompress, unpack, zcat, date, env, iostat, sar, uname, uptime, vmstat
11. Using Text Processing Commands: cut, ex, fmt, fold, join, paste, sort, tr, uniq, sed
12. Using Miscellaneous Commands: banner, bc, cal, clear, time
13. Text Editing Using vi
14. Installing Unix/Linux
15. Adding New User
16. Mounting and Unmounting File System
17. Creating and Repairing File System
18. Kernel Configuration
19. Manual System Accounting Setup
20. System Accounting Report Generation
21. Kernel Tuning
22. Connecting and Setting Up Printers
23. Email administration
24. Troubleshooting FTP
25. Backing up and Restoring System

Course Code: <b>CIT-332</b>	<b>T</b>	<b>P</b>	<b>C</b>
Course Title: <b>Web Page Development and e-Commerce</b>	1	3	2

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A course introducing the design and development of a Web page in WWW. It intends to provide the students with working knowledge on creating a Web page using HTML and FrontPage software. It covers the discussion on the WWW and the Internet, HTML basics, tools, linking, FrontPage basics, formatting, multimedia, and site creation and maintenance. This has a laboratory component to enhance learning.

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### Course Objectives

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

- Understand the concepts and methods of designing a Web page for the World Wide Web.
- Use any text editor to create an HTML code.
- Use the elements of the HTML to format a Web page
- Design and create a WWW site.
- Appreciate the impact of Internet in daily commerce.

### COURSE OUTLINE

Contents	Hours
<b>1. The Web and the Internet</b>	<b>2</b>
1.1. Internet	
1.2. Web Browsers	
1.3. Hyperlinks and URL	
<b>2. Introduction to e-Commerce</b>	<b>2</b>
2.1. Development of e-Commerce	
2.2. e-Commerce Industry Framework	
2.3. Types of e-Commerce	
2.4. Security Issues and Techniques	
<b>3. Web Page Designing</b>	<b>2</b>
3.1. Web Page Planning	
3.2. Tools	
<b>4. HTML Basics</b>	<b>2</b>
4.1. HTML Elements	
4.2. Structure of HTML Code	
4.3. Categories of HTML Body Elements	
4.4. HTML Views	
4.5. HTML Rules of Nesting	

<b>5. HTML Elements</b>	<b>6</b>
5.1. Head Section Elements	
5.2. Body Section Formatting	
5.3. Block-level Elements	
5.4. Text-level Elements	
5.5. Font-style Elements	
5.6. Phrase Elements	
<b>6. Web Linking</b>	<b>2</b>
6.1. Internal and External Links	
6.2. Anchor	
6.3. Link Format	
6.4. Link Maintenance	
<b>7. Graphics</b>	<b>2</b>
7.1. Image Element	
7.2. Image Attributes	
7.3. Image Links	
7.4. Image Maps and Files	
<b>8. FrontPage Basics</b>	<b>8</b>
8.1. Starting FrontPage	
8.2. FrontPage Views	
8.3. Starting a Page	
8.4. Document Title	
8.5. Text and Paragraph Formatting	
8.6. Images and Background	
8.7. Hyperlinks	
<b>9. Multimedia and Tables</b>	<b>2</b>
9.1. Multimedia	
9.2. Basic Table	
9.3. Text and Images in Table	
9.4. Editing Table	
<b>10. Publishing Pages</b>	<b>2</b>
10.1. Stages of Publishing	
10.2. Publishing Options	
10.3. Publishing FrontPage Web	
<b>11. Site Creation and Maintenance</b>	<b>2</b>
11.1. Personal Web Page	
11.2. Small Web Site	
11.3. Community Site	
11.4. Large Scale Site	

**Total: 32**

## References

- **HTML 4.0**, E. Stephen Mack and Janan Platt, Sybex, Inc.
- **Mastering Microsoft FrontPage 2000**, Daniel A. Tauber, et. al., Sybex, Inc.
- **Electronic Commerce-A Manager's Guide**, Ravi Kalakota, Addison Wesley



## **CIT-332 – Web Page Development and e-Commerce**

### **LEARNING OBJECTIVES**

#### **1. The Web and the Internet**

- 1.1. Differentiate WWW from Internet
- 1.2. Describe Web browsers
- 1.3. Use a Web browser
- 1.4. Discuss the development of WWW and HTML
- 1.5. Identify a Web page and Web browser
- 1.6. Define hyperlink and URL
- 1.7. Relate hyperlink and URL
- 1.8. Apply conventions in using URL

#### **2. Introduction to e-Commerce**

- 2.1. Discuss the development of e-Commerce
- 2.2. Describe the industry framework of e-Commerce
- 2.3. Describe types of e-Commerce
- 2.4. Discuss security issues in e-Commerce
- 2.5. Describe methods to secure communications in e-Commerce

#### **3. Web Page Designing**

- 3.1. Enumerate steps in planning a Web site
- 3.2. Describe approaches in designing a Web site
- 3.3. Describe steps in planning a Web site
- 3.4. Identify tools to use in writing a Web page
- 3.5. Use these tools to create a Web page

#### **4. HTML Basics**

- 4.1. Identify elements of an HTML code
- 4.2. Identify tags in an HTML code
- 4.3. Describe each element of HTML code
- 4.4. Describe the structure of HTML code

#### **5. HTML Elements**

- 5.1. Identify the contents of head section of an HTML code
- 5.2. Describe the contents of head section of an HTML code
- 5.3. Write HTML code for its head section
- 5.4. Identify body section of HTML code
- 5.5. Apply formatting code on body section of HTML code
- 5.6. Identify block-level element of HTML code
- 5.7. Identify text-level elements of HTML code
- 5.8. Apply formatting code on text-level element
- 5.9. Use different fonts for text of HTML code
- 5.10. Identify phrase element of HTML code

## **6. Web Linking**

- 6.1. Define external and internal links
- 6.2. Differentiate links and anchors in HTML code
- 6.3. Create external links in an HTML document
- 6.4. Create internal links in an HTML document
- 6.5. Format links
- 6.6. Create table of contents for a page
- 6.7. Verify and maintain links in a page

## **7. Graphics**

- 7.1. Describe image formats used in Internet
- 7.2. Use image tag in HTML document
- 7.3. Describe image formats and attributes
- 7.4. Create and edit images
- 7.5. Create links using images
- 7.6. Create image maps

## **8. FrontPage Basics**

- 8.1. Launch FrontPage
- 8.2. Navigate the main window of FrontPage
- 8.3. Identify different views of FrontPage
- 8.4. Navigate FrontPage window in view window
- 8.5. Open or create a new page
- 8.6. Create a document title in FrontPage
- 8.7. Apply formatting tools in text and paragraphs on a page
- 8.8. Insert image and define background of a page
- 8.9. Create links in a FrontPage page

## **9. Multimedia and Tables**

- 9.1. Create and edit a page with multimedia objects such as sounds
- 9.2. Describe tables in a page
- 9.3. Use tools in FrontPage to create tables in a page
- 9.4. Create tables with text and images in a table
- 9.5. Edit Table

## **10. Publishing Pages**

- 10.1. Enumerate the steps in publishing in Web
- 10.2. Describe the publishing steps in Web
- 10.3. Determine the options in publishing in Web
- 10.4. Publish pages in Web using FrontPage

## **11. Site Creation and Maintenance**

- 11.1. Differentiate the sites in Web
- 11.2. Describe the target audience of different Web site
- 11.3. Create a personal Web page

## **CIT-332 – Web Page Development and e-Commerce**

### **LIST OF PRACTICALS**

1. Installation of a Web browser
2. Creating Simple HTML Code using a text editor
3. Creating HTML Code using a word processor
4. Formatting Text in HTML code
5. Formatting Paragraphs in HTML code
6. Web Pages with Images
7. Installation of FrontPage
8. FrontPage Navigation
9. Text Formatting Using FrontPage
10. Major Project: Design and Development of Personal Web Page

Course Code: **CIT-342**  
Course Title: **PC System Architecture**

**T**     **P**     **C**  
2     0     2

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A study on the design of personal computer architecture. This is the theoretical discussion on the actual design of personal computer. It is intended to provide the students the knowledge of the design and architecture of personal computer. It covers the bus, CPU, 8088 hardware specification, different interfaces, DMA and hard disk. This is purely classroom discussion.

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### **Course Objectives**

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

- Understand the design considerations and architecture of personal computer
- Explain the internal organization of PC microprocessor
- Relate the different components of system as a working system
- Assess the real value of PC in terms of its power, reliability and capability
- Appreciate the simplicity and soundness of PC architecture

### **COURSE OUTLINE**

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<b>Contents</b>	<b>Hours</b>
<b>1. Introduction</b>	<b>2</b>
1.1. A Historical Background	
1.2. Computer Data Formats	
1.3. The Fundamental Principles of Computer Action	
<b>2. Bus System</b>	<b>2</b>
2.1. The Bus Concept	
2.2. Bus-System Categories	
2.3. Tristate Circuits	
2.4. Common Bus Standards	
2.5. The IBM PC Bus	
2.6. The Motherboard	
2.7. The Motherboard or External Bus: An Overview	
<b>3. Central Processing Unit</b>	<b>2</b>
3.1. CPU Processing Action	
3.2. Final System	
<b>4. Microprocessor and Its Architecture</b>	<b>4</b>
4.1. Internal Micro Processor Architecture	
4.2. Real Mode Memory Addressing	

4.3. Protected Mode Memory Addressing	
4.4. Memory Paging	
<b>5. 8086/8088 Hardware Specifications</b>	<b>4</b>
5.1. Pin-Outs and the Pin Functions	
5.2. Clock Generator and Bus Timing	
5.3. Ready and The Wait State	
5.4. Maximum Mode verses Minimum Mode	
<b>6. Memory Interface</b>	<b>6</b>
6.1. Memory Devices	
6.2. Address Decoding	
6.3. 8086 Memory Interface	
6.4. 80386/486 Memory Interface	
6.5. Pentium/Pentium Pro Memory Interface	
6.6. Dynamic RAM	
6.7. Memory Bus Bandwidth	
<b>7. Basic I/O Interface</b>	<b>8</b>
7.1. I/O Port Address Decoding	
7.2. The Programmable Peripheral Interface	
7.3. Programmable Interval Timer	
7.4. Programmable Communications Interface	
7.5. IBM PC I/O Address Map	
<b>8. Interrupts</b>	<b>8</b>
8.1. Basic Interrupt Processing	
8.2. Hardware Interrupts	
8.3. Interrupt Vector Table	
8.4. IBM PC Interrupt System	
8.5. Software Interrupts	
8.6. Bios Interrupts	
8.7. Programmable Interrupt Controller	
<b>9. Bus Interface</b>	<b>6</b>
9.1. ISA Bus	
9.2. EISA and VL Bus	
9.3. Mother Board Data	
9.4. PCI Bus	
9.5. The System Board Layout	
9.6. Control of Buses by CPU and DMA	
<b>10. Direct Memory Access</b>	<b>10</b>
10.1. Concept of DMA	
10.2. Programming the DMA Chip	
10.3. DMA in PC	

- 10.4. DMA Channel Priority
- 10.5. I/O Cycle Recovery
- 10.6. DMA Transfer Rate
- 10.7. Video Displays

## **11. Hard Disk**

**12**

- 11.1. Hard Disk Capacity and Organization
- 11.2. Partitioning
- 11.3. Hard Disk Layout
- 11.4. Hard Boot Record
- 11.5. Hard Disk FAT
- 11.6. Hard Disk Directory
- 11.7. Speed of The Hard Disk
- 11.8. Data Encoding Techniques in the Hard Disk
- 11.9. Interfacing Standards in the Hard Disk
- 11.10. ST506 and ST506-412
- 11.11. Enhanced Small Device Interface (ESDI)
- 11.12. Integrated Device Electronics
- 11.13. Small Computer System Interface (SCSI)
- 11.14. Interleaving
- 11.15. Low- and High-level Formatting
- 11.16. Disk Reliability

**Total Hours: 64**

## **References**

- **The Intel Microprocessors 8086/8088, 80186/80188,80286,80386,80486,Pentium, and Pentium Pro Processors Architecture, Programming and Interfacing, 4Ed.,** Barry B. Brey, Prentice Hall
- **Intel Microprocessors Hardware, Software and Applications,** Roy W. Goody, McGraw-Hill International Editions
- **The 80x86 IBM PC and Compatible Computers, Vols. I and II, Assembly Language, Design and Interfacing,** Muhammad Ali Mazidi and Janice Gillispie Mazidi, Prentice Hall

## **CIT-342– PC System Architecture**

### **LEARNING OBJECTIVES**

#### **1. Introduction**

- 1.1. Describe historical background of computer development
- 1.2. Explain computer data formats
- 1.3. Explain the fundamental principles of computer action

#### **2. Bus System**

- 2.1. Describe the usefulness of a bus
- 2.2. Describe bus-system categories
- 2.3. Describe tristate circuits
- 2.4. Common bus standards
- 2.5. Describe common bus standards
- 2.6. Describe the IBM PC bus
- 2.7. Explain the layout of a motherboard
- 2.8. Give an overview the motherboard bus or external bus

#### **3. Central Processing**

- 3.1. Enumerate the steps in CPU operation cycle
- 3.2. Explain the working of a CPU (Fetch-Execute Cycle)

#### **4. Microprocessor and its Architecture**

- 4.1. Explain internal micro processor architecture
- 4.2. Explain real mode memory addressing
- 4.3. Explain protected mode memory addressing
- 4.4. Explain memory paging

#### **5. 8086/8088 hardware Specifications**

- 5.1. Describe pin-outs and pin functions of 8088/86 chip
- 5.2. Describe clock generator and its function
- 5.3. Explain bus timing
- 5.4. Explain ready and the wait state
- 5.5. Compare maximum mode with minimum mode

#### **6. Memory Interface**

- 6.1. Describe memory devices
- 6.2. Explain address decoding in memories
- 6.3. Explain 8086 memory interface
- 6.4. Explain 80386/486 memory interface
- 6.5. Explain Pentium/Pentium Pro memory interface
- 6.6. Describe dynamic ram
- 6.7. Describe memory bus bandwidth

## **7. Studying Basic I/O Interface**

- 7.1. Explain I/O port address decoding
- 7.2. Explain the programmable peripheral interface
- 7.3. Explain programmable interval timer
- 7.4. Explain programmable communications interface
- 7.5. Describe IBM PC I/O address map

## **8. Interrupts**

- 8.1. Describe basic interrupt processing
- 8.2. Describe hardware interrupts
- 8.3. Explain interrupt vector table
- 8.4. Explain IBM PC interrupt system
- 8.5. Explain software interrupts and bios interrupts
- 8.6. Explain programmable interrupt controller

## **9. Bus Interface**

- 9.1. Describe ISA, EISA and VL Bus
- 9.2. Explain Mother Board Data Flow
- 9.3. Describe PCI Bus
- 9.4. Explain The System Board Layout
- 9.5. Explain the Control of Buses by CPU and DMA

## **10. Direct Memory Access**

- 10.1. Describe the concept of DMA
- 10.2. Explain how to program the DMA Chip
- 10.3. Explain DMA's in PC: DMA #1 and DMA #2
- 10.4. Explain DMA Channel Priority
- 10.5. Describe I/O Cycle Recovery
- 10.6. Define DMA Transfer Rate
- 10.7. Explain use of DMA with Video Displays

## **11. Hard Disk**

- 11.1. Describe hard disk capacity and organization
- 11.2. Explain the purpose of HDD partitioning
- 11.3. Explain hard disk layout and HDD boot record
- 11.4. Describe hard disk file allocation table
- 11.5. Describe the physical structure of the hard disk directory
- 11.6. Explain the issues regarding the speed of the hard disk
- 11.7. Explain data encoding techniques in the hard disk
- 11.8. Describe interfacing standards in the following types of hard disks:
- 11.9. ST506 and ST506-412
- 11.10. Enhanced small device interface (ESDI)
- 11.11. Integrated device electronics
- 11.12. Small computer system interface (SCSI)
- 11.13. Explain interleaving



Course Code: **CIT-353**  
Course Title: **PC System and Peripheral Repair**

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A major course dealing with the main component of the microcomputer motherboard, its internally attached components and the peripherals. It is designed to provide student with skills and knowledge to maintain, diagnose and repair computer main system board and peripherals. It covers concepts and methods of preventive maintenance, fault diagnose of motherboard, power supply, memory, storage device, PCB, printers, monitors and other externally attached component of computer system. This has laboratory component.

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### **Course Objectives**

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

- Understand the concepts and methods of computer system maintenance
- Apply skills and knowledge to maintain PC main system component and peripherals.
- Understand the operational principles PC power supplies.
- Assemble and disassemble printers, scanners, monitor, mouse, keyboard and cards.
- Diagnose and repair faulty PC main system board and peripherals.
- Demonstrate patience and motivation in repairing minute computer components.

### **COURSE OUTLINE**

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<b>Contents</b>	<b>Hours</b>
<b>1. Preventive and Practical Maintenance</b>	<b>4</b>
1.1. Contributors to Failures	
1.2. Scheduled Maintenance and Error/Fault Record	
1.3. Engineer's Toolbag and Use of Testing/Measuring Instruments	
1.4. Maintenance through Replacement	
1.5. Second Level of Maintenance	
1.6. Hardware Diagnostic Routines and Diagnostic Software	
<b>2. Troubleshooting and Repair of Motherboard</b>	<b>6</b>
2.1. Motherboard Block Diagram and Components	
2.2. CPU Characteristics and Types	
2.3. Daughter Boards	
2.4. Commonly Occurring Faults and Important Signals for Fault Tracing	
2.5. Diagnostic Tests	
2.6. Card Substitution Method and Replacing a Motherboard	
2.7. Preventive Measures	

<b>3. Troubleshooting and Repair of Power Supply</b>	<b>6</b>
3.1. Operating Principle of a Power Supply	
3.2. Troubleshooting Procedures and Commonly Occurring Faults	
3.3. Repair Techniques and Replacing a Power Supply	
<b>4. Troubleshooting Memories and Storage Devices</b>	<b>4</b>
4.1. Overview of RAM and ROM: DIP, SIMM, and DIMM Packing	
4.2. Types of Memories	
4.3. Troubleshooting Routines	
4.4. FDD, HDD and IDE HDD and SCSI	
4.5. Tape Drive and Compact Disks	
4.6. Bernoulis Drive and Zip drive	
<b>5. Peripherals</b>	<b>4</b>
5.1. Configuring the Peripherals and the CONFIG.SYS File	
5.2. Auto-Configuration and Plug and Play Devices	
<b>6. Maintenance and Repair of Printers</b>	
<b>6.1. Dot Matrix Printer</b>	<b>4</b>
6.1.1. An Overview: Working of a Dot Matrix Printer	
6.1.2. User Level Preventive and Corrective Maintenance	
6.1.3. Common Faults	
6.1.4. Disassembly and Assembly of Dot Matrix printer	
6.1.5. Repairing the Dot Matrix printer	
<b>6.2. Line Printer</b>	<b>4</b>
6.2.1. Line Printer: An introduction	
6.2.2. Operating Line Printer: Control Panel and Indicators	
6.2.3. User controlled Preventive Maintenance	
6.2.4. Steps for Technician Level Maintenance	
<b>6.3. Jet Ink Printer</b>	<b>4</b>
6.3.1. Jet Ink Printer: An Introduction	
6.3.2. User Level Preventive and Corrective Maintenance	
6.3.3. Disassembly and Assembly of Jet Ink Printer	
6.3.4. Common Faults and Repairing Jet Ink Printer	
<b>6.4. Laser Printer</b>	<b>4</b>
6.4.1. Introduction of Laser	
6.4.2. Common Faults and Safety Measures	
6.4.3. Preventive maintenance and Corrective Maintenance	
<b>7. Maintenance and Repair of Scanners</b>	<b>4</b>
7.1. An Overview: Image Reading	
7.2. Disassembly and Assembly of Scanner	

7.3. Common Faults: Steps of Preventive and Corrective Maintenance

<b>8. Maintenance and Repair of Monitors</b>	<b>8</b>
8.1. Overview of Video Monitor Display	
8.2. Common Faults of a Monitor	
8.3. Diagnostics, Preventive and Repairs of Monitors	
<b>9. Maintenance and Repair of Keyboard</b>	<b>4</b>
9.1. Basic Working of Keyboard and Keyboard Installation	
9.2. Disassembly/Assembly of a Keyboard	
9.3. Interface Problems	
9.4. Diagnostics, Preventive and Repair techniques	
<b>10. Maintenance and Repair of Mouse</b>	<b>4</b>
10.1. Working of a Mouse and Installation	
10.2. Disassembly and Assembly of a Mouse	
10.3. Cleaning and Preventive Measures	
<b>11. Troubleshooting Basic I/O Interface Card and Surface Mount PCB</b>	<b>4</b>
11.1. Theory of Basic Input Port and Output Port	
11.2. Construction of an I/O card	
11.3. Fault Diagnosis and Repairs.	
11.4. Working of SMD	
11.5. Use of Special Tools for Soldering	
11.6. Troubleshooting an IC and SMD	

**Total Hours: 64**

**References**

- **Microcomputer Troubleshooting and Repair, 2Ed**, Stephenson and Cahill, Hword W. Sams Company, McMillan.
- **Microprocessors and Interfacing, 3Ed.**, Barry B. Brey
- **PC Upgrade and Maintenance Guide, 8ed**, Mark Minasi, BPB Publications, India
- **Upgrading and Repairing PC, 8ed**, Scott Mueller, Que Corporation,
- **Hardware Technician**, in CD

## **LEARNING OBJECTIVES**

### **1. Preventive maintenance**

- 1.1. List the contributors to failures of system
- 1.2. Describe the effects of corrosion and magnetism to system performance
- 1.3. Handle correctly peripherals
- 1.4. Describe Virus and prescribe measures to prevent virus attacks
- 1.5. Schedule maintenance
- 1.6. List tools used for system maintenance
- 1.7. Use correctly testing and measuring instruments
- 1.8. Make error or fault records
- 1.9. Describe fault-finding flowchart
- 1.10. Perform system maintenance by replacement
- 1.11. Describe second level maintenance
- 1.12. Describe hardware diagnostic routines
- 1.13. Use diagnostic software
- 1.14. Describe the limitation of diagnostic software

### **2. Troubleshooting and Repair of a Motherboard**

- 2.1. Describe motherboard
- 2.2. Describe system board and planar board
- 2.3. Identify motherboard components and functional block using block diagram
- 2.4. Enumerate types and characteristics of CPU
- 2.5. Differentiate types of bus and slots
- 2.6. Describe daughter boards
- 2.7. Identify common video, I/O types
- 2.8. List of commonly occurring motherboard faults
- 2.9. Identify important signals for fault tracing
- 2.10. Isolate the area of fault probability
- 2.11. Describe diagnostic tests and perform fault preventive measures
- 2.12. Perform card substitution method for repairs and replacement of motherboard

### **3. Troubleshooting and Repair of a Power Supply**

- 3.1. Describe regulation of power supply.
- 3.2. Explain operating principle of power supply
- 3.3. Interpret block diagram or schematics of power supply
- 3.4. Describe switch mode and transformer-based unit of power supply
- 3.5. Explain block diagram of a switching power supply.
- 3.6. Describe battery type power supply
- 3.7. Determine different output voltages of power supply
- 3.8. Test good signal power supply

- 3.9. Explain how a power good signal is produced
- 3.10. Perform troubleshooting procedures of power supply
- 3.11. Localize the fault into a narrow region of the circuit
- 3.12. Identify commonly occurring faults of power supply
- 3.13. Explain causes of faults in power supply itself
- 3.14. Use essential tools and test equipment
- 3.15. Explain concept of a dummy load for testing a power supply in no load condition
- 3.16. Describe various repairing techniques
- 3.17. Perform soldering/desoldering, chip/component replacement
- 3.18. Perform replacement of power supply

#### **4. Troubleshooting Memories and Storage Devices**

- 4.1. Describe RAM and ROM
- 4.2. Enumerate different types of memories
- 4.3. Describe each type of memory
- 4.4. Describe parity error in memory
- 4.5. Perform troubleshooting routines of memory
- 4.6. Replace memory chip
- 4.7. Describe the operational principles of floppy and hard disk drives
- 4.8. Identify parts of floppy and hard disk drives
- 4.9. Describe the IDE and SCSI setup of drives
- 4.10. Install and setup floppy and hard disk drives
- 4.11. Describe operational principles of tape, compact, Bernoulli and Zip drives
- 4.12. Install and setup tape, compact, Bernoulli and Zip drives

#### **5. Peripherals**

- 5.1. Describe peripherals configuration
- 5.2. Describe CONFIG.SYS file and its significance
- 5.3. Explain configuring techniques
- 5.4. Describe auto-configuration and Plug and Play devices

#### **6. Maintenance and Repair of Printers**

- 6.1. Dot Matrix Printer
  - 6.1.1. Maintain and Repair Dot Matrix Printer
  - 6.1.2. Identify parts of dot matrix printer
  - 6.1.3. Describe operation of dot matrix printer.
  - 6.1.4. Describe steps to install a dot matrix.
  - 6.1.5. Explain the significance of a test print/Self Testing.
  - 6.1.6. Interpret the information given on a test page.
  - 6.1.7. Demonstrate the cleaning of the printer.
  - 6.1.8. Explain schedule for Technician Level Maintenance.
  - 6.1.9. Disassemble and assemble dot matrix printer
  - 6.1.10. Diagnose faulty dot matrix printer.
  - 6.1.11. Repair faulty dot matrix printer

## **6.2. Line Printer**

- 6.2.1. Explain print mechanism of line printer to print a complete line at a time.
- 6.2.2. Describe Installation steps for a line printer
- 6.2.3. Explain every indicator especially the engineer's fault indicator of line printer control panel
- 6.2.4. Test line printer
- 6.2.5. Explain the significance of result of test.
- 6.2.6. Explain these with the help of the technical service manual, which accompanied the printer.
- 6.2.7. Explain with the help of user manual of the printer. Emphasis is given to constantly followed cleaning printer as well as the environment. Air-conditioning plus very accurate supply line.
- 6.2.8. Use the technical service manual

## **6.3. Jet Ink Printer**

- 6.3.1. Explain the operational principles of jet ink printer
- 6.3.2. Identify working parts of jet ink printer
- 6.3.3. Describe the function of each part of jet ink printer
- 6.3.4. Install a jet ink printer
- 6.3.5. Identify common faults occurring in jet ink printer
- 6.3.6. Disassemble and assemble jet ink printer
- 6.3.7. Perform preventive and corrective maintenance of jet ink printer

## **6.4. Laser Printer**

- 6.4.1. Explain the operational principles of laser diode.
- 6.4.2. Describe the working of a photocopier for comparison with working of a laser printer.
- 6.4.3. Identify the laser printer Parts
- 6.4.4. Install toner cartridge, connecting printer's Cable and cord, loading paper. customize options
- 6.4.5. Use online help
- 6.4.6. Installing memory cards.
- 6.4.7. Explain the front panel information: Error, Data, Ready, On/Off, and Blinking.
- 6.4.8. Describe the laser printer common faults
- 6.4.9. Explain the danger against laser beam exposure of eyes and skin etc.
- 6.4.10. Explain the steps for preventive maintenance with the help of a user manual.
- 6.4.11. Perform corrective maintenance

## **7. Maintenance and Repair of Scanners**

- 7.1. Explain image reading
- 7.2. Explain optical character recognition mechanism.
- 7.3. List the top software available in the market and describe their salient features.
- 7.4. List kinds of scanners
- 7.5. Explain the usage and technical difference
- 7.6. Install and operate scanner

- 7.7. Explain the physical connection, the loading of software, setting up the configuration (theory only) etc.
- 7.8. Use a scanner.
- 7.9. Disassemble/Assemble a scanner
- 7.10. Describe common scanner faults
- 7.11. Perform preventive maintenance
- 7.12. Perform corrective maintenance

## **8. Maintenance and Repair of Monitors**

- 8.1. Describe CRT, Power Supply, Scan Board
- 8.2. Define pixels, dot pitch, aspect ratio, power indicator, contrast, brightness, +/- buttons, and other adjustment buttons
- 8.3. Describe horizontal position/size, vertical position/size, 15-Pin D-Subtype connector, non-glare screen, tinted screen, and tilt/swivel stand.
- 8.4. Describe video controller chip, video RAM, video image chip, digital to analog converter, port to monitor, signal assignment, factory preset timing signals
- 8.5. Describe display adapters: MDA, CGA, EGA, VGA, SVGA, XGA, 8514.
- 8.6. Differentiate color monitor diagram from monochrome monitor diagram.
- 8.7. Enumerate common faults of a monitor
- 8.8. Classify various faults: Power Supply-based, deflection faults, horizontal hold, vertical hold, and alignment faults, supply line faults, interface-based faults.
- 8.9. Diagnose common monitor faults
- 8.10. Describe preventive measures for monitors.
- 8.11. Identify the field repairable parts of the card.
- 8.12. Describe predetermined fault.
- 8.13. Diagnose monitor interface card fault.
- 8.14. Repair repairable interface card

## **9. Maintenance and Repair of Keyboard**

- 9.1. Describe basic working of a keyboard
- 9.2. Define concept of rows and columns to form a matrix of key positions.
- 9.3. Disassemble keyboard
- 9.4. Identify keyboard matrix, controller chip, 5-pin connector.
- 9.5. Describe functions of signals between the CPU and keyboard
- 9.6. Assemble keyboard
- 9.7. Clean dirty key contacts

## **10. Maintenance and Repair of Mouse**

- 10.1. Describe operating principle of mouse
- 10.2. Describe GRU interface/ Pointing device.
- 10.3. Disassemble mouse
- 10.4. Identify mouse parts such rollers, ball, photo diode, LED
- 10.5. Describe different mouse: serial, BUS type, two buttons, three buttons, wireless type, and laptop type mouse.
- 10.6. Show restriction on mouse movement
- 10.7. Clean mouse as a preventive measure

## **11. Troubleshooting Basic I/O Interface Card and Surface Mount PCB**

- 11.1. Interpret schematic diagram of various cards
- 11.2. Identify functional blocks of I/O card
- 11.3. Describe a multi I/O card.
- 11.4. Design an I/O card to control a motor moving in counterclockwise/counterclockwise direction.
- 11.5. Describe working of I/O card
- 11.6. Identify flow of circuit through block diagram
- 11.7. Diagnose faults
- 11.8. Describe 74244 as basic input interface and 74374 as a basic output interface.
- 11.9. Describe working of 8255 and PPI chip.
- 11.10. Describe various application chip such as 8279, 8254, 8251.
- 11.11. Identify replaceable parts of a card
- 11.12. Replace replaceable parts of I/O card



## **CIT-353– PC System and Peripherals Repair**

### **LIST OF PRACTICALS**

1. Use of Testing and Measuring Instrument
2. Disassembly and Identification of Motherboard Components
3. Diagnostic Test of Motherboard
4. Disassembly and Identification of Power Supply Parts
5. Troubleshooting Power Supply
6. Troubleshooting Memory
7. Disassembly and Identification of Floppy Disk Parts
8. Preventive Maintenance and Troubleshooting of Floppy Disk Drive
9. Identification of Hard Disk Parts
10. Identification and Troubleshooting of Surface Mount PCB
11. Installation and Setup of Dot Matrix Printer
12. Identification and Disassembly/Assembly of Dot Matrix Printer
13. Fault Diagnosis and Preventive and Corrective Maintenance of Dot Matrix Printer
14. Installation and Setup of Line Printer
15. Identification and Disassembly/Assembly of Line Printer
16. Fault Diagnosis, Preventive and Corrective Maintenance of Line Printer
17. Installation and Setup of Jet Ink Printer
18. Identification and Disassembly/Assembly of Jet Ink Printer
19. Fault Diagnosis, Preventive and Corrective Maintenance of Jet Ink Printer
20. Installation and Setup of Laser Printer
21. Identification and Disassembly/Assembly of Laser Printer
22. Fault Diagnosis, Preventive and Corrective Maintenance of Laser Printer
23. Installation and Setup of a Scanner
24. Identification and Disassembly/Assembly of Scanner
25. Fault Diagnosis, Preventive and Corrective Maintenance of Scanner
26. Identification and Disassembly/Assembly of Monitor and its Interface Card
27. Troubleshooting, Preventive and Corrective Maintenance of Monitor
28. Identification, Disassembly and Assembly of Keyboard and its Interface Card
29. Fault Diagnosis, Preventive and Corrective Maintenance of Keyboard
30. Identification and Disassembly/Assembly of Mouse and its Interface Card
31. Troubleshooting, Preventive and Corrective Maintenance of Mouse
32. Identification and Disassembly/Assembly of Common Interface Cards
33. Troubleshooting, Preventive and Corrective Maintenance of Common Interface Cards

Course Code: **CIT-363**  
Course Title: **Project**

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An end-term laboratory course where the students apply the concepts and principles of electronics, computer hardware and software to construct and device prototypes of simple products. It aims to provide students with opportunity to apply the knowledge and skills learned in the program. It is all practicals course.

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### **Course Objectives**

At the end of the course the students are expected to be able to construct and device simple electronics or computer hardware/software devices.

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### **Activities**

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1. Organization
2. Research of Project
3. Project Proposal with Write Up
4. Evaluation of Project Proposal for Feasibility
5. Fabrication/Construction of Project
6. Consultation
7. Presentation

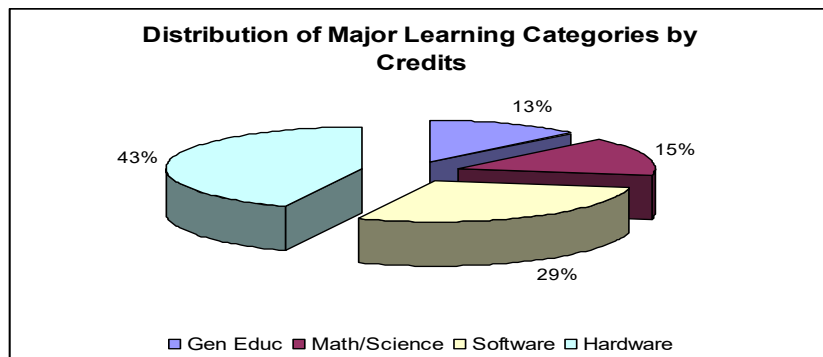
**DAE in Computer Information Technology**

**SUMMARY OF CURRICULUM**

## DAE in Computer Information Technology

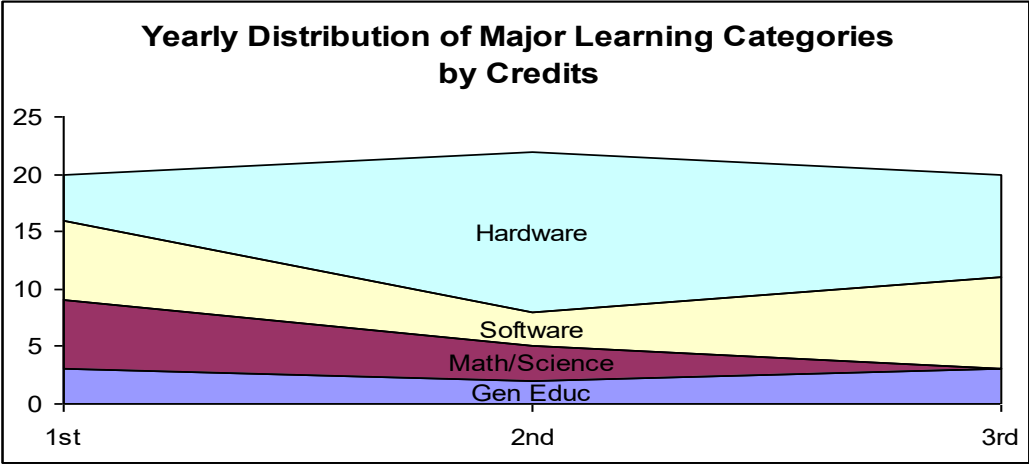
### Distribution of Learning Categories

	<b>T</b>	<b>P</b>	<b>C</b>	<b>Course Code</b>
Gen Education	9	0	9	Gen 111, Eng 112, OHSE 101, Gen 211, Mgm 211, Gen 311, Eng 311, Mgt 331
Math/Science	8	6	10	Math 123, Phy 132, Math 233, Che-132
Software	7	18	13	CIT 112, CIT 123, CIT 213, CIT 332, CIT 323
Hardware	17	24	25	CIT 143, CIT 233, CIT 225, CIT 243, CIT 253, CIT 313, CIT 342, CIT 353
<b>Totals:</b>		<b>41</b>	<b>48</b>	<b>57</b>



### Yearly Distribution of Major Learning Categories by Credits

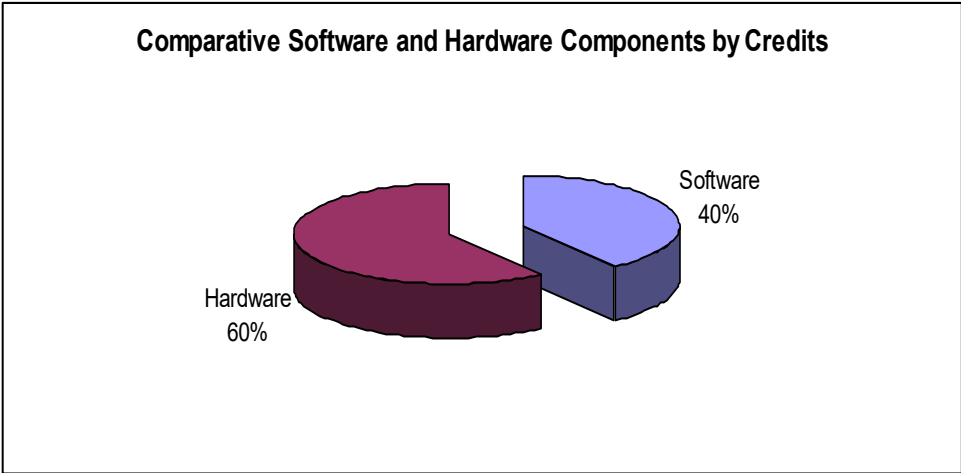
	1st	2nd	3rd	Course Code
Gen Education	3	<b>2</b>	3	[Gen 111, Eng 112, OHSE] [ <b>Gen 211, Eng 212</b> ] [Gen 311, Eng 311, Mgt 311]
Math/Science	6	<b>3</b>	0	[Math 123, Phy 112] [ <b>Math 212</b> ] [ ]
Software	7	<b>3</b>	8	[Comp 111, Comp 112] [ <b>Comp 211</b> ] [Comp 311, Comp 312, Comp 313]
Hardware	4	<b>14</b>	9	[Comp 123, Comp 124] [ <b>Comp 222, Comp 223, Comp 224,</b> <b>Comp 225</b> ] [Comp 324, Comp 325, Comp 326]
<b>Totals:</b>	<b>20</b>	<b>22</b>	<b>20</b>	

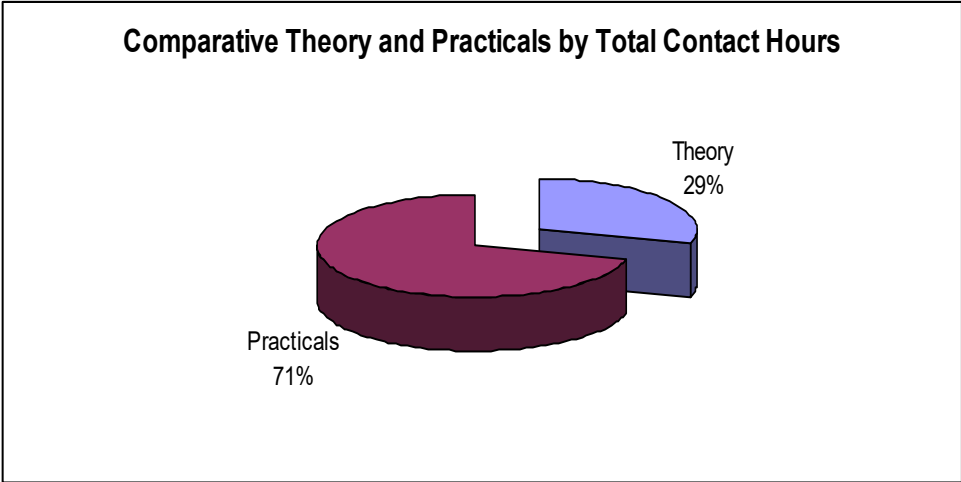


**DAE in Computer Information Technology**

**COMPARISONS OF MAJOR COURSES**

	<b>Theory</b>	<b>Practicals</b>	<b>Credits</b>
<b>Software</b>	10	24	<b>18</b>
<b>Hardware</b>	15	36	<b>27</b>
<b>Totals</b>	<b>25</b>	<b>60</b>	





### DAE in Computer Information Technology

#### TOPOLOGICAL SORT OF MAJOR COURSES

