

**H. N. G. University , Patan**  
**M.Sc.(CA & IT) – Semester - VI**  
**601: Management Information System**

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**Unit: 1**

**[25%]**

**Information System in Global Business Today:**

- The Roll of Information Systems in Business Today
- Perspectives on Information Systems
- Contemporary Approches to Information Systems
- Hands-on MIS Projects

**E-Business :How Businesses Use Information Systems**

- Business Processes and Information Systems
- Types of Information Systems
- System that Span the Enterprise
- The Information Systems Function in Business

**Information Systems, Organizations and Strategy**

- Organizations and Information Systems, How Information Impact Organizations and Business Firms, Using Information Systems to Achieve Competitive Advantage

**Unit: 2**

**[25%]**

**Ethical and Social Issues in Information Systems**

- Understanding Ethical and Social Issues Related to Systems,Ethics in Information Society
- The Moral Dimensions of Information Systems

**Securing Information Systems**

- System Vulnerability and Abuse,Business Value of Security And Control
- Establishing a Framework for Security and Control,Technologies and tools for Protecting Information's Resources

**Achieving Operational Excellence and Customer Intimacy:**

- Enterprise Systems,SCM,CRM
- Enterprise Applications

**Unit: 3**

**[25%]**

**Managing Knowledge And Collaboration**

- The Knowledge Management Landscape,Entetprise-Wide Knowledge Management Systems
- Knowledge Work Systems,Intelligent Techniques

**Enhancing Decision Making**

- Decision Making and Informations Systems,Systems for Decision Support
- ESS

**Unit: 4**

**[25%]**

**Building Information Systems**

- Systems and Planned Organizational Change,Overview of Systems Development
- Alternative Development for the Digital Firm,Application Development for the Digital Firm

**Managing Projects**

- The Importance of Project Management,Selecting Projects
- Establishing the Business Value of Informations Systems,Managing Project Risk

**Managing Global Systems**

- The Growth of International Informations Systems
- Organizing International Informations Systems,Managing Global Systems

**Text Books :-**

1. Management Information Systems 11th Edition by Ken Laudon,Jane Laudon and Rajanish Dass ,PEARSON

**Reference Book :-**

1. Management Information Systems, 4th Edition by Robert Schultheis, Mary Summer, PHI.
2. Management by Stoner, freeman, Gilbert, 6th Edition PHI Publication.
3. MIS by T. Lucey, BPB

**H. N. G. University , Patan**  
**M.Sc.(CA & IT) – Semester - VI**  
**602: Software Engineering**

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**Unit: 1**

**[25%]**

**Introductory Concepts:** Historical perspective, Software myths.

**The Process:** Software process, Software process models - The waterfall model, Incremental process models, Evolutionary process models, Specialized process models.

**Design Methods:** Design principles, Design concepts, Effective modular design, Data design, Transform mapping, Transaction mapping.

**Unit: 2**

**[25%]**

**Verification, Validation and Testing :** Strategic approach to software testing, Test strategies for conventional software, Validation Testing, System Testing, The art of debugging, Black box Testing, White box Testing, Control structure Testing, Software Quality, Metrics for Analysis, Metrics for Design, Metrics for source code, Metrics for Testing, Metrics for maintenance.

**Unit: 3**

**[25%]**

**Project Planning and Risk management :** Software measurement, Project planning process, Software scope & Decomposition techniques, Empirical estimation model, Make/Buy decision, Reactive versus Proactive risk strategies, Software risks, Risk identification, Risk projection, Risk refinement, Risk mitigation, monitoring, and management, Safety risks and hazards, The RMMM plan.

**Unit: 4**

**[25%]**

**Software Quality Assurance :** Quality concepts, The quality movement, Software quality assurance, Software reviews, Formal technical reviews, Formal approaches to SQA, Statistical quality assurance, Software reliability, The SQA plan, Introduction to ISO standards, Software configuration management.

**Text Books :-**

1. Pressman R.S: Software Engineering: A Practitioner approach, McGraw hill

**Reference Book :-**

1. Sommerville I: Software Engineering, Addison Wesley

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**M.Sc.(CA & IT) – Semester - VI**  
**603: Health & Yoga**

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- Unit: 1** **[20%]**  
Meaning-need-importance of historical background of yoga, types of yoga: Astang yoga, Bhakti yoga, karma yoga, Instructions for the practice of Asan-Pranayam
- Unit: 2** **[20%]**  
Definition-need-importance of good Health, Attainment of Health through yoga, Effects of yoga on different system of human body, impact of yoga on daily life. Scientific effects of yogasanas. Prayanaym – Kriyas and surya-namaskar.
- Unit: 3** **[20%]**  
Definition-meaning of physical fitness- its need and importance, meaning of wellness difference between physical fitness and wellness the relationship between fitness/wellness and health
- Unit: 4** **[20%]**  
Assessment of physical fitness-sports related fitness and health related fitness. Problems associated with measurement of physical education strength and endurance, assessment and prescription.
- Unit: 5** **[20%]**  
Body composition-techniques for assessing body composition, nutrition for weight control and wellness-effects of exercises on physical fitness,components of physical fitness and their meaning and importance.

**Text Books & Reference Book : -**

1. Swami Digamberji.Yoga and physical education,Kavivalyadhama.Lonavala,India
2. Yogamimamsa,Quarterly Publication Kavivalyadhama Lonavala,India
3. Dr.M.L.Gharota,Science of Yoga,kaivalayadhama, Lonavala,India
4. Dr.Karambalkar,Therapuetic value of yoga,Kaivalyadhama, Lonavala,India
5. Barry L.johnson and jack k Nelson,Practical Measurement for evaluation in physical Education Burguss Publishing Company,University of Minnesota.
6. Werner.W.K.Horger and Sharon A Hdger,Fitness and Wellness,morton publishing company,Englewood
7. Resthowel and A.K.Uppal,Foundation of physical Education,Friends publication Newdelhi

**H. N. G. University , Patan**  
**M.Sc.(CA & IT) – Semester - VI**  
**604: Multimedia Technology and Virtual Reality Development**

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- Unit: 1** **[15%]**  
**Introduction to graphics**  
Raster and Vector graphics, Environment elements, Sizing and selecting Images, Masks, Text, Filter, Blending and Compositing, Layers and Layers Effect, Image modes, Color and Printing, Adjusting Images
- Unit: 2** **[25%]**  
**Introduction to Multimedia**  
Concept of Non Temporal and Temporal Media, Basic characteristics of Non-Temporal Media: Images, graphics, Text Basic characteristics of Temporal Media : Video, Audio, Hypertext and Hypermedia.  
Presentations: Synchronization, Event scripts and Interactivity, Introduction to Authoring Systems.  
**Compression Techniques**  
Basic concept of compression, Still Image compression: JPEG compression, Future of JPEG2000  
**Video Compression** : MPEG1 & 2 compression scheme, MPEG-4 natural video compression.  
**Audio Compression** : Introduction to speech and audio compression, mp3 compression scheme. Compression of synthetic graphical objects.
- Unit: 3** **[20%]**  
**Multimedia Systems Architecture**  
General purpose Architecture for multimedia support: Introduction to multimedia PC/workstation Architecture, characteristics of MMX instruction sets,  
I/O Systems: overview of USB port, and IEEE1394 interface, Operating system support for multimedia data: Resource scheduling with real time considerations, file system, I/O device management.
- Unit: 4** **[20%]**  
**3D Computer graphics**  
The virtual world space, positioning the virtual observer, the perspective projection, human vision, Stereo perspective projection, 3D clipping, color theory, simple 3D modeling illumination models, shading algorithms, radiosity, hidden surface removal, realism stereographic images.  
**Geometric modeling**  
From 2D to 3D, space curves, 3D boundary representation,  
**Geometric Transformations**  
Frames of reference, modeling transformations, instances, picking flying.
- Unit: 5** **[20%]**  
**Virtual Reality**  
Introduction to Virtual Reality and Virtual Reality Systems,  
**Related Technology** :Tele-Operation and augmented reality systems, interface to the virtual world input, Head and hand trackers, data globes, haptic input devices, interface to the virtual world-output, stereo display, head-mounted display, Auto-stereoscopic displays, holographic display haptic and force feedback,  
**VRML programming** : modeling object and virtual environment domain, dependent application – medical, visualization, environment etc

**Text Books & Reference Book : -**

1. Multimedia Technology, Tay Vaughan, McGraw-Hill
2. Multimedia Concept & Practice, Hartman & Carey, Phi
3. Virtual Reality Systems, John Vince, Pearson Education Asia.

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**M.Sc.(CA & IT) – Semester - VI**  
**605: Visual Programming with VC++**

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- Unit: 1** **[25%]**  
**VISUAL C++ PROGRAMMING – INTRODUCTION**  
Application Framework – MFC library – Visual C++ Components –Event Handling –String functions- Mapping modes- introduction to GDI- device context – basic drawing – colors – fonts – modal and modeless dialog – windows common controls – bitmaps-Win32 memory management- message processing
- Unit: 2** **[25%]**  
**THE DOCUMENT AND VIEW ARCHITECTURE**  
Menus – Keyboard accelerators– toolbars – status bars – reusable frame window base class – separating document from its view – reading and writing SDI and MDI documents – context sensitive Help-creating DLLs – dialog based applications
- Unit: 3** **[25%]**  
**ACTIVEX AND OBJECT LINKING AND EMBEDDING (OLE)**  
ActiveX controls Vs. Ordinary Windows Controls – Installing ActiveX controls – ActiveX control container programming – create ActiveX control at runtime – Component Object Model (COM) – ATL object- OLE drag and drop – OLE embedded component and containers – sample applications
- Unit: 4** **[25%]**  
**DATABASE MANAGEMENT CONCEPTS**  
Database Management with Microsoft ODBC – Structured Query Language – MFC ODBC classes – sample database applications – filter and sort strings – Database Management with Microsoft DAO – displaying database records in scrolling view-Exception handling

**Text Books :-**

1. David J.Kruglinski, George Shepherd and Scot Wingo, "Programming Visual C++", Microsoft press, 1999 (Unit II – V)

**Reference Book : -**

1. Mastering Visual c++ 6, Michael J. Young, Wiley India pvt.
2. Steve Holtzner, "Visual C++ 6 Programming", Wiley Dreamtech India Pvt. Ltd., 2003.

**H. N. G. University , Patan**  
**M.Sc.(CA & IT) – Semester - VI**  
**606: System Development Project - I**

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In this subject-head, students have to do Information system development work and/or design work or software development work in any organization/ company/institute to gain industry experience.

The students will be assigned one or more system development projects. It will be an external project, with work duration of 50 days. The students have to start work on project after completion of the VI semester of 3<sup>rd</sup> year practical/theory examination. The students should have to do full time work i.e. at least 5 days per week with at least 5 hours per day.

Students may work in team (comprising not more than three) or individually to acquire hands-on skills in system development.

Following could be the possible alternatives for the projects.

1. Development of a system for IT / Computer company or institutional or government department.
2. Development of Hypothetical Application.
3. Analysis of work (Analytical or descriptive) Information project / system including cyber laws, standard, which may not include source coding.
4. Network designing and deployment. ( may include less source coding as per nature of work)
5. Developing and / or designing a website or web scripting.

Project work should include all of the phases of system development life cycle. Like

- Analysis of a system
- Designing, Source Coding
- Documentation
- Implementation &
- Updating in system (if any)

The system development project evaluation divided into (1) Internal marks 100 (Industry marks 30 + Progress Report marks 70) and (2) Final Viva / Presentation Examination marks 150.

- 1) During the project work, Department will conduct presentations of progress of project at different stages. There will be 70 internal marks for progress reports. At least three progress report need to be conduct by the department. The organization / company may also give the grades as per his/her individual performance and progress in different stages of a project, which may be considered at the stage of internal evaluation by the internal experts penal of the Department.
- 2) After the completion of the system development project work, organization / company owner or project leader has to provide confirmation of work done ( certificate of work completion ) as well as Organization / Company marks (Industry marks ) out of 30.
- 3) After the completion of a system development project, the University has to arrange Viva/Presentation examination, which will be of 150 marks. The examination Panel should include Academic Experts as well as Industry Experts. The experts will decide student's marks out of 150 as per his performance. Panel should contain at least 4 experts. The Viva/Presentation examination time for each group should be at least 40 minutes.