

The Role of Higher Education Institutions in Providing Knowledge Workers: A Case Study on Master in Knowledge Management (MKM) Programme at the Faculty of Information Management (FIM), UiTM Shah Alam, Selangor, Malaysia.

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ABSTRACT

This paper highlights several benefits of the knowledge management (KM) programme to organisations in various industries. It stresses on the importance of knowledge worker (KW), its competencies and skills in order to compete in the knowledge based economy. It discusses how Malaysian government is responding to the challenge and the roles of Higher Learning Institutes in developing academic programmes that suit the market needs. There are many measures which have been taken in creating and preparing for the knowledge workers. The Faculty of Information Management (FIM) for instance has undertaken proactive action, to offer Master in Knowledge Management (MKM) programme in which the curriculum has been developed to emphasise on competence-oriented learning concepts. It shows how FIM has designed its curriculum model (MKM) based on the strengths of its existing system. To meet the desired educational outcomes, it complements curriculum changes with a pedagogic approach that transforms the role of FIM to facilitators of learning. Curriculum pertaining to the development of the new era knowledge worker will also be discussed.

Keywords

Knowledge management (KM), Knowledge worker (KW), Master in Knowledge Management (MKM), Institute of Higher Learning

1.0 INTRODUCTION

Knowledge management (KM) is a product of the 1990s and a hot topic in organizations, with many practitioners in different disciplines, including business, engineering, information management, communications, education, and

epistemology, among others. Over the last few years, KM has emerged explosively through an interdisciplinary approach dealing with all aspects of knowledge in organisations, organisational learning, knowledge creation, codification, organisation, sharing and application (Srikantaiah, 2004a). In general, KM deals with capturing the collective expertise of an organisation. Some examples of definitions follow:

- KM is a broad process of locating, organising, transferring, and using information and expertise within an organisation (Broadbent, 1998).
- KM is the systematic process of identifying, capturing, and transferring information and knowledge people can use to create, compete and improve (American Productivity and Quality Centre, 2002).
- Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the mind of “knowers”. In organisations, it often becomes embedded not only on documents or repositories but also in organisational routines, processes, practices, and norms (Davenport and Prusak, 1998).
- KM is about creating systems that enable organisations to tap into the knowledge, experiences, creativity of their staff to improve their performance (Davidson & Voss, 2003).
- A sample list of KM processes include: generating new knowledge; accessing knowledge from external sources; representing knowledge in documents, databases, software and so forth; embedding knowledge in processes, products, or services; transferring existing knowledge around an organisation; using accessible knowledge in

decision making; facilitating knowledge growth through culture and incentives; measuring the value of knowledge assets and the impact of knowledge management. (Galagan, 1997).

2.0 BENEFITS OF KM

Knowledge is certainly the best resource and the only sustainable competitive advantage to individuals and organizations. There are numerous benefits of the KM programme to organisations from various industries. The Australian Standards Authority provides the following list of ways a KM strategy can tailor particular kinds of benefits to the core business of an organisation (Rollo & Clarke, 2001:13):

- Industries based on innovation can use KM to accelerate the process of research and development, and to manage intellectual property.
- Companies offering professional services can use KM to enhance (by broadening or deepening) their expertise.
- Industries founded on creation of intangibles (such as entertainment and publishing) can employ KM to develop creative skills and networks, and to protect intellectual capital.
- Industries relying on relationships (such as retail) can use KM to enhance customer service and offer greater product and service depth and quality.
- Companies dependent on the value of brands (such as fashion) can use KM to improve their market intelligence.
- Companies requiring good coordination of complex activities (such as manufacturing) can use KM to increase control.

Unfortunately, all of the benefits can only be achieved by having all the strategic elements in KM that are human, technology and culture. KM is highly dependent on the quality of human capital or intellectual capital, in terms of creativity, insight, entrepreneurship, and innovation as the most critical source of an organisation's or a country's competitive advantage. Knowledge is power, since the main asset which determines the employability of individuals are their knowledge. Meanwhile, (Davidson & Voss 2003) stated that *"Computers are fast, accurate but dumb; on the other hand, human are slow and sloppy but smart."* Therefore, it is very crucial to focus on the most critical element that is human which include the education and training for the knowledge worker.

3.0 EDUCATION AND KNOWLEDGE WORKER: MALAYSIAN UNIVERSITIES AND THE KNOWLEDGE ECONOMY

Evidence of the importance of the knowledge economy in Malaysia comes largely from the relative growth and superior remuneration of highly educated people in the workforce. The New Economy is the dramatic increase of university graduates in the labour force over the last four decades in all fields (Fong, 2001). The 20th century saw a growing demand for intangible capital represented by education and research, compared with the 19th century, which was marked by a strong demand for physical capital in the form of buildings and machines. In the words of (Ariff Kasim, 2001), two distinguished American economic historians, in the 20th century:-

"The bias of technological innovation has been intangible capital-using and, in particular, has increased the relative demand for human capital formed through investments in education."

The knowledge economy generates a strong demand for university graduates because of the very nature of scholarly activity in universities. These institutions are good places because learning takes place in an environment of research and scholarly innovation. By education, researchers and scholars can share their knowledge, experience and can develop skills and competencies in various fields. Various skills are required for occupations in order to thrive and survive the knowledge economy. The workers can be grouped into four levels of skills which are as follows:

- Professional workers (skill level A): occupations for which a university degree (bachelor's, master's, or postgraduate level) is required
- Specialized technical workers (skill level B): occupations requiring two- three years of post secondary education at a community college or technology institute; two - four years of apprenticeship training; or three to four years of secondary school and more than two years of on-the-job training, specialized training courses, or specific work experience
- Intermediate workers (skill level C): jobs requiring one to four years of secondary school education or up to two years of on-the-job training, specialized training courses, or specific work experience
- Unskilled workers (skill level D): up to two years of secondary

The Ministry of Education expects the entire higher education sector in Malaysia to produce more than 10,000 knowledge workers every year. In the Eighth Malaysian Plan, it is stated that the Malaysian government is spending more than RM 3 billion

annually in order to be competitive in the knowledge economy. The cost includes university facility, appropriate course/ programme, staff training etc.

Moreover, the Malaysian education system is committed to providing a comprehensive, thorough and high quality level of education. The school attendance in Malaysia is significantly high compared with other countries. This high number of enrolment is also apparent in the higher education institutions, which means Malaysia has a large pool of skilled workforce capable of innovative activities.

The setting-up of local universities to enable the transition to knowledge economy shows signs of such motives targeted towards specific sectors. For example, *University Putra Malaysia (UPM)* was initially for the agriculture sector; *University Science Malaysia (USM)* and *University Technology Malaysia (UTM)* was to provide scientific, technological and engineering programmes and *University Technology MARA (UiTM)* was established to improve the economic status of the *Bumiputera* (Indigenous people). A more recent example is *Multimedia University (MMU)* which was set up to provide knowledge workers for the Multimedia Super Corridor (MSC) project. Ministry of Education has to maintain consistency in the quality of the education system in Malaysia in order to produce well trained and qualified graduates suitable for market needs.

4.0 RELATIONSHIP BETWEEN KNOWLEDGE AND SKILLS

Information technologies (IT) may be affecting the boundary of knowledge, and might be increasing the importance of acquiring a range of skills or types of knowledge (Nonaka, 1998).

In the knowledge economy era, computer literacy and access to information have the tendency to become more important than literacy. The knowledge-based economy is characterized by the need for continuous learning of both codified information and the competencies to use this information (OECD, 1996). When we have skills and competencies to get the information, the process to get it becomes easier and less expensive. Tacit knowledge in the form of skills needed to handle codified knowledge is more important than ever in labour markets (Bayliss, 1999).

Codified knowledge might be considered as the material to be transformed, and tacit knowledge, particularly know-how, as the tool for handling this material. Capabilities for selecting relevant and disregarding irrelevant information, recognizing patterns in information, interpreting and decoding information as well as learning new and forgetting old skills are in increasing demand. The gathering of tacit knowledge needed to develop maximum benefit from

knowledge codified through information technologies and smart information management can only be done through learning. This is the proof how skills might be of effect to the knowledge searching and learning of knowledge.

5.0 THE ROLES OF EDUCATION AND TRAINING FOR K-WORKER

Education and training is a medium production in the knowledge economy, as a creator, customer and export earner (David, 2000). The education and training industry produces skilled people, create knowledge, provide access for the community to the lifelong benefits of online learning and is an enabling force for other industries. Tertiary education provides the foundation knowledge, skills, attitudes and values. Education and training equip Malaysians for work and enhance workers with knowledge and skills. Education and training encourages workers and enterprises to increase their investment in training.

The role of knowledge and training within the economy is leading to a whole range of new industries and new developments in biotechnology, new materials science, informatics, and computer science. Derrick, 2000 mentioned that,

“at least ten components that should be included and or enhanced in knowledge, education and learning”. Each of these components is briefly described below:-

- A focus on abstract concepts
- Uses a holistic, as opposed to discrete, approach
- Enhances the student’s ability to manipulate symbols
- Enhances the student’s ability to acquire and utilise knowledge
- Produces an increased quantity of scientifically and technically trained persons
- Blurs the distinction between mental and physical labour
- Encourages students to work in teams
- Uses virtual teams around the world
- Is an agile and flexible system
- Break the boundaries of space and time

Universities also motivate in an internationally competitive environment. They supply the professionals and experts required for many highly skilled occupations, leadership and management. Meanwhile (David Kemp, 2000) added *“universities make a major contribution to all countries’ research and development effort. Higher education is the second largest research and development performer after the business sector. Many of the innovations that were created through the Research and Development*

department of the information economy have originated in higher education institutions”.

Pedro and Manuel (1999) classified the roles of the university in the knowledge management and economy edge generally as:-

- R & D (Research and Development) Centre – *which aims at the accumulation of ideas through convergent learning process.*
- R & T (Research and Teaching) – *in which research functions as a way of developing teaching materials, as well as of improving the teaching skills of the teaching staff.*
- R & L (Research And Learning) – *in which the value of the research is not necessary in the creation of ideas but the development of skills that enhance opportunities for learning.*

6.0 KNOWLEDGE MANAGEMENT: EDUCATION AND TRAINING

Knowledge management (KM) training is offered worldwide by a wide variety of organizations. They include academic institutions, software vendors, consulting firms, and professional organizations. Training for KM also exists at both individual and organization levels, geared for both experienced KM practitioners and novices who wish to gain a better understanding of the field. In academic institutions, training in KM was developed at various levels: academic degree programmes, concentration in KM in degree programmes, certificate programmes, continuing education programmes, workshops, and seminars. Universities from all over the world are offering KM programmes at various levels. United States of America, Canada, United Kingdom, New Zealand, Australia, and Malaysia are among the countries that offer KM programmes at their universities. In Malaysian universities the Master in KM programmes are available in Multimedia University (MMU) and Universiti Teknologi MARA (UiTM).

There are several differences which exist between KM Graduate Degree Programmes offered in Library and Information science schools, Engineering and Computer science schools and Business schools. Curricula in KM for graduate programmes can vary widely depending on the focus of the training and school that administers it. A review of the graduate degree that offers a more rigorous and longer term commitment indicates that three schools dominate in KM training: library and information science schools, engineering and computer science schools and business schools (Srikantaiah, 2004b).

Library and information science schools regard KM as an extension of information management where the

basic premises revolve around identifying information needs, locating information sources, selecting information sources, organizing information, developing taxonomies and classification schemes, and disseminating information. They are primarily concerned with textual (semi structured) data and information; secondly with structured information; and only marginally with tacit information.

However, engineering and computer science schools train KM specialists with an emphasis on technology (especially software). Engineering schools view KM through IT and computer science. They train individuals in coding techniques, networks, and technology application packages, and cover knowledge production, acquisition, storage and dissemination.

On the other hand, business schools emphasize organizational analysis and design, and organization learning aspects, in their KM training. In some cases, there is a management information system (MIS) emphasis. Some business schools also offer executive management training in KM.

7.0 MASTER IN KNOWLEDGE MANAGEMENT (MKM) PROGRAMME AT THE FACULTY OF INFORMATION MANAGEMENT (FIM), UiTM.

KM caters to the critical issues of organizational adoption, survival and competence in the face of increasing discontinuous environmental change; essentially it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings (Malhotra, 1997).

From Malhotra's definition of KM we can see that the human element or aspect is of equal importance as information and databases organization. So at the FIM, we hope to be able to train students to become familiar with the current theories, practices, tools and techniques in KM, and later combine the acquired skills in Information Management (IM) related subjects in order to assist students in pursuing a career in the information sector for public and private sectors.

In most organizations, the tacit knowledge of their top management staff is of vital importance. However they are facing the problems of their senior staff retiring and the knowledge of their jobs is not being recorded in a systematic and comprehensive manner. As Michael Porter mentioned “People are your firm's repository of knowledge, skill and experience base that makes your firm competitive.” The students of the MKM Programme will be taught on the basic theories and concepts on KM and IM. However more emphasis will be given on KM subjects.

The FIM realised the importance of having the MKM Programme after conducting a research study on 50 MSC status companies on their needs for knowledge workers. From the data collected it showed that 19 of the respondents or 34% held positions as knowledge managers. 32 of the respondents or 64 % mentioned that it was difficult to employ k-workers as there is an inadequate supply of employees who have a background on the studies of KM. The respondents also indicated that institutions of higher learning should offer courses in KM at Masters or Doctoral level so that more professionals with KM background can fill up the vacant posts available in both public and private sectors.

In addition, based on recent findings by the MDC from the 2004 Impact Survey (*Figure 1*) indicated that 620 companies reported that they employed 19,061 employees in 2003 which translates into an average of 30.7 employees per company. This ratio per company was higher than the ratio recorded in 2002 which was 26.7 employees per company; an increase of 15%. The total employment figure is expected to increase by approximately 17% next year to 22,293. It is also anticipated that the trend will continue to be positive in the near future with more than 85% of the staff employed categorized as knowledge workers holding high value jobs. Of the 19,061 people employed more than 16,000 of them are classified as k-workers. 82% of these k-workers are Malaysians.

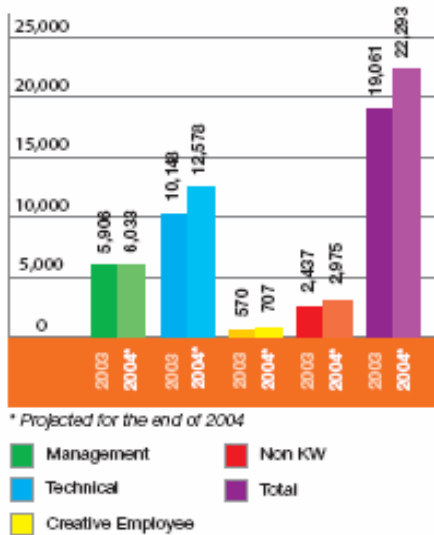


Figure 1: MSC Total Employment

Moreover, the 2004 Impact Survey (*Figure 2*) also found that more than 54% of staff employed by MSC status companies has at least a first degree whilst the remaining 19% have at least a Diploma, 8% with Masters and 1% with PhD. The survey findings indicated increments in all categories of qualifications except, for professional certificate, with the number of PhD holders increased by 26%, 24% for Masters, 6% for Degree, 10% for Diploma and 49% for Non-Degree. The FIM strongly believe that the MKM

programme will be able to supply more k-workers especially at the post graduate level which will be highly demanded by the MSC status companies as they are focusing more on the research and development activities.

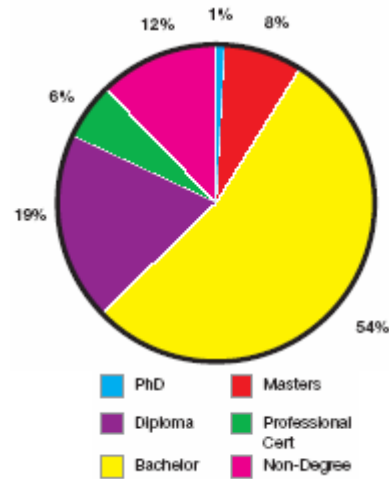


Figure 2: Employees Qualification

The demand for professions which require KM background from KM is indeed most encouraging and promising. Looking at the present situation the demand for positions such as Chief Information Officer (CIO), Chief Knowledge Officer (CKO), Knowledge Management Executive, Knowledge Manager, Directors and Executives who are truly qualified to handle information sources and knowledge are still very much lacking.

The situation can be further heightened with the establishment of the MSC which was created from the aspirations of Tun Dr Mahathir bin Mohamed, the Ex Prime Minister of Malaysia. Tun Dr. Mahathir mentioned that the purpose of MSC is to enable Malaysia to leapfrog into the information age and to create an ideal environment that will attract world class companies to use as a regional multicultural information age hub. The 7 flagship applications developed in MSC are electronic government, multipurpose card, smart school, tele-health, R & D clusters, e-business, and technopreneur development. In order to see through all these projects the demand for knowledge workers will be critical at the developmental stage that is in the year 2005, 2010, 2015 and so forth. MSC will expand its applications to the whole nation in the year 2020 and there is no doubt that knowledge experts will be required to assist in the various projects. Hopefully Malaysia can reach the same level as the other developed countries. In future we hope not to rely strongly on expertise from overseas as in the long run it will be unprofitable. If the country depends greatly on overseas experts, in due course the economy might face a gradual decline. Eventually the resources of the country which is being exploited continuously will be transferred overseas. Due to this

factor the Malaysian government has planned a strategy via E-economy in order to ensure and manipulate the knowledge assets from various sources and to channel production activities for certain products or services.

Government departments such as INTAN, corporate companies such as Maxis and statutory bodies for example Bank Negara, Malaysian Palm Oil Board (MPOB) SIRIM, MDC, Klang Port Management and others have established special units in their organizations to manage knowledge resources. KM in fact has existed for some time in prominent companies operating in this country such as Microsoft Corp., Intel, Ernst & Young, Price Waterhouse Coopers, Arthur Andersen, Buckman Laboratory, Hewlett Packard, Texas Instrument, Fuji Xerox Corporation, Texas Instruments, Toyota, Honda, Royal Shell, BP Amoco, Federal Express, Johnson & Johnson, Levi Strauss and others.

Furthermore, Badruddin (2004) based on his research finding on KM Initiatives in Malaysian organizations stated that 46% of the respondents were reporting that they have established formal KM initiatives in their respective organisations. The respondents are including the companies listed in the Kuala Lumpur Stock Exchange (KLSE), government Ministries and Departments, educational institutions, the electronic industries, and government-owned agencies.

Economist experts are of the opinion that Information and knowledge are the main instruments to be used in order to remain competitive from the economic point of view. Information and knowledge are regarded as highly valuable and priceless which is comparable to raw materials, big factories and physical resources. In order to stay competitive only giant companies which can handle information and knowledge efficiently and effectively will be able to succeed. This is in tandem with the statement made by Peter Drucker, "The most valuable assets of the twenty-first century company are its knowledge and kworkers". Hence based on this reason, it is most appropriate and timely that the MKM has been introduced at the FIM, UiTM. The main objective of starting this course is to assist the public and private sectors to work closely in building a strong economy through KM. Thus, through KM corporate bodies/ companies can remain competitive, be better organized and in return are able to provide services which are more effective and efficient.

The MKM programme at the FIM hopes that by introducing subjects which are related to KM, graduates from this programme who are 'bumiputera' (*indigenous people*) will be able to fill up the vacancies for the positions of k-workers (at managerial level) in this country.

The job opportunities in the field of knowledge management are available in the public and private sectors which have carried out knowledge management principles in their organizations. Numerous job opportunities can be occupied by our graduates from the MKM based on the current market scenario. The positions related to KM can be designated as below:

1. Knowledge Manager
2. Chief Knowledge Officer
3. Knowledge System Engineer
4. Knowledge Process Manager
5. Knowledge Transfer Engineer
6. Knowledge Community Leader
7. Intellectual Capital Manager
8. Performance Measurement Engineer
9. Knowledge Assurance Manager
10. Knowledge Research Engineer
11. Knowledge Architect

All these professions require expertise and specialized technical skills in the field of KM compared to IM.

In order to produce graduates to meet the industrial needs, the curriculum has been designed to include core and elective subjects in this MKM programme which are as follows:

1. Knowledge Management Content

- Fundamentals in Knowledge Management
- Learning Organization and Organizational Learning
- Collaborative Inter-Organizational Learning
- Knowledge Management Tools
- Knowledge management and Culture
- Knowledge – Based Project Management

2. Information Management and Systems Content

- Competitive Intelligence
- Information Sources and Management
- Information Storage and Retrieval Systems
- Resource Discovery , Mining & Warehousing

3. Research and Evaluation Methods

- Measurement and Evaluation in Knowledge Assets

(Please see *Appendix I* on the course outline for the subjects offered in the MKM Programme).

8.0 CONCLUSION

In a paper entitled "KM Programme: its relevance in an academic environment and challenges to the training of knowledge workers by Raja Abdullah and Alwi (2003), the authors recommend to any KM Graduate Programme the following points:

- **Feedback and analysis**
Feedback from the students in the MKM programme should be taken from time to time from all aspects of its operations, environment, ICT facilities and the cultural change. This is very important in order to improve the quality of the programme and services
- **Evaluation and Measurement**
Some forms and evaluation and measurement should be carried out in order that the project is viable and will be improved from time to time
- **Knowledge Repository**
Systematic records management must be practiced in line with the implementation of KM practices. Large components of the records are knowledge records and therefore should be well stored and organized for easy retrieval. The repository of the knowledge should be maintained and that the institutional records and knowledge be kept in an organized manner
- **Conversion of Tacit Knowledge to Explicit Knowledge**
There is a serious move to convert tacit knowledge which accounts for one's rich and valuable experience and thoughts into explicit knowledge. The documentation of the tacit knowledge will be a catalyst for future use.
- **Establishment of Learning Organizations**
Organizations which believe strongly on KM programme can plan a formal structure which will manage both the training of human resource and the process of

knowledge dissemination,

learning, relearning and unlearning

From these recommendations we hope to be able to take more proactive measure in order to improve the quality of our MKM Programme. We also hope to produce MKM graduates who will be employed by various organizations which intend to embark or already have its KM structure either in Malaysia or Overseas. With an increasing demand for knowledge workers with appropriate skills, we strongly believe that our MKM programme will be able to achieve its goals such as follows:

- To teach students how to apply the acquired education and skills to their professional or occupational endeavours
- To educate the students the fundamentals

of professional body of knowledge they can eventually apply if they take up roles in the KM profession

- To prepare the next generation of KM teachers in the theory and pedagogy of the emerging KM discipline and profession.

All of these will be achieved through well planned and structured curriculum, taught by qualified and experienced teaching staff; and last but not least to gain strong support from top management. However, effective KM may require significant change in culture and values, organisational structures and reward systems in order to succeed in implementing KM.

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APPENDIX I

GRADUATE STUDIES FACULTY OF INFORMATION MANAGEMENT MASTER IN KNOWLEDGE MANAGEMENT (IS 771)

CORE COURSES

1. **Information Storage and Retrieval Systems:** This course introduces students to the concept of information storage and retrieval systems – a pre-requisite of an effective information management. It seeks to explain the theories, principles and practices of organizing information, especially with the use of information technology. It focuses on how information is identified, described, represented, repackaged and stored in textual databases in order to be easily accessible to satisfy information needs of specific clientele such as decision makers, researchers, members of an organization as well as the general public. It also deals with the development of effective information retrieval systems that contribute to the realization of knowledge-based economy and society.
2. **Information Sources and Management:** This course attempts to expose students to the multidimensional types and forms of information that are available, their use and ways they can be accessed. In all activities, information is needed, the knowledge of the type, how to access and make it available will support and enhance this activity. This course will also describe the various information agencies and how they are managed.
3. **Information System: Analysis, Design and Management:** The course introduces students in the methods for information system development used for knowledge management. Techniques and processes for effective development of information systems will be discussed and explored.
4. **Fundamentals of Knowledge Management:** This course will introduce students to the concept of knowledge creation, intellectual capital, values, and knowledge audit and knowledge management as a whole. Student will also learn certain methodologies on hoe to identify the type of knowledge available in an organization and systems to manage them.
5. **Competitive Intelligence:** The ability of an organization to compete in the global market depends on its ability to develop strategies that are better than the others. The rapid growth of technology, such as the fibre optics, biotechnology, computer systems, robotic, digital nervous systems, etc. requires thorough research and development, speedy actions and accurate actions. Unlike in the past, these phenomena are centred on knowledge and not raw materials. Translating knowledge-related elements into usable intelligence would undoubtedly guarantee the success of the companies. Thus, this course will introduce students to the concept of competitive intelligence, its importance, values, strategies, etc. Students will also learn certain methods to identify the types of knowledge and systems available in an organization.
6. **Learning Organization and Organizational Learning:** The course outlines the theory and practice of information management within the context of the 'learning organization'. Models for the theory and application of Knowledge Management will be explored, and the possible functions of machinery to improve human competitiveness will be examined.
7. **Collaborative Inter-Organizational Knowledge Sharing:** The course is designed to provide students with the knowledge in organizations. Students are expected to grasp the knowledge and to take the initiative to enhance the management quality as well as to develop a mechanism which would be used by the staff as well as the public for the purpose of knowledge sharing as to be beneficial to the organization especially when it needs the collaboration of the members to maintain the competitive advantage. The course describes underlying issues and initiatives to address the sharing of knowledge, the system and also the barriers to its implementation.
8. **Knowledge Management Tools:** This course introduces student a wide variety of information communication technology (ICT) tools that are very vital in knowledge management initiatives. The application of ICT involves every step in knowledge management cycle that is knowledge creation, knowledge codification, knowledge organisation, knowledge sharing, and knowledge application. Among the technologies that will be discussed are KM System, KM Portal, Internet, Intranet, Extranet, Electronic conferencing, Data Warehouse and others.

9. **Resource Discovery, Mining and Warehousing:** Competitive business pressures and desire to leverage existing information technology investment have led many firms to explore the benefits of data mining technology. This technology is designed to help businesses discover hidden patterns in their data-patterns that can help them understand the purchasing behaviour of their key customers, detect likely credit card or insurance fraud, predict probable changes in financial markets, etc. Many firms have invested heavily in information technology to help them manage their businesses more effectively and gain a competitive edge. Over the last three decades, increasingly large amounts of critical business data have been stored electronically and this volume is expected to continue to grow considerably in the near future. Yet despite this wealth of data, many companies have been unable to fully capitalize on its value. This is because information that is implicit in the data is not easy to discern. This paper explores data mining, its potential benefits to users. It also explains how data mining activities can be integrated within an existing user environment, including those activities that already make use of data warehousing.

ELECTIVE COURSES (SELECTED)

1. **Knowledge Management and Culture:** This course introduces students to the concept of knowledge management leadership, change management and corporate culture – a pre-requisite of a successful KM System in any organization. It highlights the characteristics of a successful leader. It seeks to explain the theories, principles and practices of knowledge sharing culture in organization, especially with the help of information technology. It focuses on how an organization can build up a positive culture such as knowledge sharing, reward and recognition system that will support the implementation of successful KM system: that is aligned with its business strategies.
2. **Measurement and Evaluation in Knowledge Assets:** This course enables students to exercise analytical thinking ability in measuring and evaluating different operations, activities and services pertaining to knowledge work. Students have already become aware of evaluation processes in previous subjects, but this paper extends and expands methods used in measuring and evaluating various aspects of knowledge work at in-depth level.
3. **Knowledge-based Project Management:** This course attempts to expose students to the general overview of project management. It discusses the management challenges and provides guidelines on how to start and manage a project in an effective and efficient manner in Information work. The course further suggests several technological tools and methods that can be used in managing a project. It discusses the characteristics of a good leader and elements of team building. It also requires students to apply the information skills in searching for information needed in making decisions and solving problems in the area of project management.
4. **Independent Study:** The course provides students opportunity to undertake the study of a topic of special interest to them. The topic may be an offshoot of certain courses that have direct relevance to students' career or issues at the organization/ national level. Students work under guidance of a supervisor in order to pursue and investigate the topic in detail and produce a written report according to the prescribed format.

