University of Ibadan

AFRICA REGIONAL CENTRE FOR INFORMATION SCIENCE

PROFESSIONAL MASTER OF INFORMATION RESOURCES MANAGEMENT (MIRM)

(Available as from 2013/2014 Session)

JUNE 2013

BACKGROUND

Since 1990, the Africa Regional Centre for Information Science (ARCIS) has been engaged in the development of human resources in information science, essentially, through higher degree programmes, seminars, and workshops. The Master's degree programme in Information Science provides high-level training in the theory and practice of information science. The programme is designed for graduates who wish to qualify as full professionals, preparatory to practice or research careers in information science. In addition, the optional follow up MPhil, MPhil/Ph.D and Ph.D. degree programmes offer graduates of the Master of Information Science programme, the opportunity to train for academic and research careers.

The current Master of Information Science (M.Inf.Sc.) degree programme started in 1990 with a view to training high-level manpower for both academic and professional careers in the information industry. However, the dynamism of the information industry and the changing requirements for human resource development in the industry have made it imperative to periodically review programmes for achieving the above objectives.

After more than 20 years of implementation (1990 – 2011), it has become obvious that the current omnibus M.Inf.Sc degree programme is inadequate to effectively achieve the objective of producing graduates for both academic and professional careers. The first major problem has been the admission requirements, which favoured candidates interested in academic careers to the disadvantage of those who would have been interested only in a professional degree. This has limited the number of applicants and intake to the programme. Secondly, the academic requirements of the programme demanded that the intellectual requirements be kept very high, resulting in high failure and dropout rates, especially for those who would have coped well with a professional programme. Furthermore, the omnibus nature of the programme has made it difficult to effect changes to the curriculum to reflect either changing trends in the information industry or emerging issues in information science and systems research. Finally, the dynamism and diversity of the information industry are such that a single professional programme cannot adequately cater for the emerging trends and specializations in the industry.

CURRICULUM DESIGN CONSIDERATIONS

1. **Global trends in the information science and technology training progrsmmes:** Continuous advances in information science and technology have made the information industry one of the fastest growing economic sectors in the world with several specialties emerging from its core subject content. This has increased the demand for the formal training of middle-level human resources with skills in systems and database administration, web design, data mining, information visualization, computer graphics and animation, information systems, data analysis, project management, information security, digital forensics, etc. Graduates of an undergraduate programme in information science would be well placed to fill gaps in, or to develop themselves further in a variety of careers, including: information and knowledge management; database administration; web content management; information systems project management; information products and services design and marketing; and information and management consulting.

2. **Information Industry and Market Study:** A market study with MacArthur Foundation funding on the global and national trends in the knowledge and practice aspects of information science education at the master's and bachelor's degree levels. The study (i) reviewed the literature and contents of the curricula for information science and technology programmes in different parts of the world, and (b) surveyed the perceptions of Nigerian employers, Nigerian university undergraduates, and ARCIS graduates and students about job prospects and preferences, skills areas and sets, and their career choices and experiences in the Nigerian information industry. Findings from the study in respect of master's programmes showed that (a) information science education had historical been slanted to academic research than professional practice; but that (b) the global trend in the last decade had been information industry-oriented programmes that emphasize concentrated skill development for different aspects of the industry. The strategies to achieve this have varied between (c) multiple professional programmes that emphasize different skills sets, or professional programmes that provides for tracks or areas of skill specialisation.

3. **Market and Job Prospects:** The survey also revealed that a number of Nigerian private universities, sensing the growing importance of the information industry, have been establishing undergraduate degree programmes in various aspects of information science, technology and systems for which they would require academic staff. The study also revealed the skill sets which Nigerian employers and ARCIS graduate working within and outside Nigeria recommended for emphasis in new programmes at the master's and bachelor's degree level.

These were the main considerations for the proposal to replace the present M.Inf.Sc degree programme with two separate programmes focusing on academic and professional training respectively, and the professional programme providing for areas of specialization. This proposal concerns the proposed professional programme.

NAME OF THE PROGRAMME

Professional Master of Information Resources Management (MIRM)

OBJECTIVES

This is a professional programme that aims to:

a) develop the students' knowledge and skills for professional careers in information technology and systems and management positions in the information industry.
b) produce graduates with generic data, information, knowledge and information technology management skills, along with specialized knowledge and skills in specified areas in the information industry
c) produce graduates with adequate versatility, innovativeness and confidence to assume leadership positions at middle to top managerial position in the information industry.

TARGET GROUP

University graduates or higher national diplomates, or equivalents who are interested in pursuing professional and managerial careers in information sciences, technology and systems.

ADMISSION REQUIREMENTS

Applicants to the programme must possess any of the following minimum qualifications, or equivalents, obtained from institutions approved by Senate:

a) Second Class honours degree in any discipline;
b) Third Class in any discipline, plus an academic or professional master's degree in any discipline
c) Higher National Diploma (HND) at Upper Credit classification.

DURATION AND MODE OF STUDY

The programme will normally last for a minimum of five and a maximum of eight semesters of part-time study.

DESIGN FEATURES

The information industry continues to spawn increasing diverse areas of specialization particularly at higher knowledge and skill levels. Thus, in line with current trends in curriculum design for information science, technology and systems education at the graduate level, the programme provides for students to choose to specialize in any one of four areas of specialisation of courses. There are, however, compulsory courses that are common to all the areas of specialisation, in addition to which students are required to take additional core (compulsory or required) courses specific to their selected areas of specialisation. Other courses from within and outside the programme and Centre are also recommended as electives for each area of specialisation.

The areas of specialisation are designated as:

(1) Corporate Knowledge Management
(2) Database Design and Administration
(3) Web Application Development
(4) Information Management Practice

SUMMARY OF COURSES

Course Code	Course Title and Description	Units	Status
FSC 701	Introduction to Information Science and Theory	2	C
IRM 702	Research and Quantitative Methods for Information Professionals	2	C
FSC 715	Organization of Information and Data Sources	2	C
IRM 717	Online Searching	2	C
FSC 721	Information Systems Analysis, Design and Evaluation	2	C
FSC 724	Database Management Systems I	2	C
FSC 725	Database Management Systems II	2	E
FSC 726	Advanced Programming and Introduction to Data Structures	2	E
FSC 727	Man-Machine Interface and Ergonomics	2	E
FSC 728	Web Content Management	2	E

FSC 729	Web Application Development	2	E
FSC 731	Information Users, Sources and Systems	2	C
FSC 736	Technical Writing and Presentation	2	C
FSC 741	Management of Information Resources	2	C
FSC 744	Design and Marketing of Information Products	2	E
FSC 746	Management Information and Decision Support Systems	2	E
IRM747	Corporate Knowledge Management	2	E
IRM 748	Information Systems Project Management	2	E
FSC 755	Information Technologies	2	C
FSC 757	Introduction to Artificial Intelligence and Expert Systems	2	E
IRM 761	Information Policy, Industry Regulation and Strategy	2	E
IRM762	Content Management	2	E
IRM 765	Social and Ethical Issues in IT and Services	2	E
IRM 766	Information Security	2	E
IRM 767	Government Information Systems and E-Governance	2	E
IRM 768	Electronic Society	2	E
IRM 769	Information Visualisation	2	E
IRM770	Information Business Process Analysis and Management	2	E
IRM771	Consumer behaviour and Market Research	2	E
IRM 772	Intellectual Asset Management	2	E
IRM 773	Information Industry Trends and Strategies	2	E
IRM 774	Information Management Problem Solving, Team and Leadership Skills Development	2	E
IRM 775	Information Architecture & Knowledge organisation	2	E
IRM776	Setting Up and Managing an Information Business	2	E
IRM 777	Research and Development Management	2	E
IRM 778	Open Systems and Technologies	2	E
IRM 779	Information and Information Technology Training Design & Implementation	2	E
IRM 794	Industrial Attachment	2	C
IRM 799	Seminar Paper	2	C

SPECIALIZATIONS

Corporate Knowledge Management Specialisation

This specialisation aims to equip students with knowledge and skills to provide information and knowledge management support for decision makers and managers at different levels in organizations. Graduates are expected to play such roles in their designated positions as information officers, content managers, business process managers, organizations and methods analysts, information architects, information auditors, information managers, information resource managers, information end-user support officers; knowledge managers, knowledge engineers, information policy analysts, data administrators, librarians, etc.

The degree for this area of specialisation shall be designated Master of Information Resources Management (Corporate Knowledge Management)

Course Code	Course Title	Units	Status
	Core Courses (Common for all Specialisations)		
FSC 701	Introduction to Information Science and Theory	2	Compulsory
IRM 702	Research and Quantitative Methods for Information Professionals	2	Compulsory
FSC 715	Organization of Data and Information Sources	2	Compulsory
IRM 717	Online Searching	2	Compulsory
FSC 721	Information Systems Analysis, Design and Evaluation	2	Compulsory
FSC 724	Database Management Systems I	2	Compulsory
FSC 731	Information Users, Sources and Systems	2	Compulsory
FSC 736	Technical Writing and Presentation	2	Compulsory
FSC 741	Management of Information Resources	2	Compulsory
FSC 755	Information Technologies	2	Compulsory

IRM 794	Industrial Attachment	2	Compulsory
IRM 799	Seminar Paper	2	Compulsory
	Sub-Total	**24**	
	Specialisation Courses		
IRM 747	Corporate Knowledge Management	2	Compulsory
IRM 762	Content Management	2	Compulsory
IRM 775	Information Architecture and Knowledge Organization	2	Compulsory
IRM 772	Intellectual Asset Management	2	Compulsory
IRM 766	Information Security	2	Required
FSC 746	Management Information and Decision Support Systems	2	Required
FSC 757	Introduction to Artificial Intelligence and Expert Systems	2	Required
	Sub-Total	**14**	
	Sub-Total (Compulsory and Required Courses)	**38**	
	Electives		
	Selected from ARCIS courses and approved courses in other departments	**7-22**	
	TOTAL	**45-60**	

Database Design and Administration Specialisation

This specialisation aims to equip students with knowledge and skills to develop, build and manage databases and database systems for organizations using commercial and open source database management systems platforms. The specialisation aims to prepare graduates for roles of data administrators and database administrators in different types of organizations, including small and medium enterprises. The specialisation provides a foundation upon which more advanced database administration skills can be built through advanced database administration industry certification programmes.

The degree for this area of specialisation shall be designated Master of Information Resources Management (Database Design and Administration)

Summary of courses for specialisation

Course Code	Course Title	Units	Status
	Core Courses (Common for all Specialisations)		
FSC 701	Introduction to Information Science and Theory	2	Compulsory
IRM 702	Research and Quantitative Methods for Information Professionals	2	Compulsory
FSC 715	Organization of Data and Information Sources	2	Compulsory
IRM 717	Online Searching	2	Compulsory
FSC 721	Information Systems Analysis, Design and Evaluation	2	Compulsory
FSC 724	Database Management Systems I	2	Compulsory
FSC 731	Information Users, Sources and Systems	2	Compulsory
FSC 736	Technical Writing and Presentation	2	Compulsory
FSC 741	Management of Information Resources	2	Compulsory
FSC 755	Information Technologies	2	Compulsory
IRM 794	Industrial Attachment	2	Compulsory
IRM 799	Seminar Paper	2	Compulsory
	Sub-Total	**24**	
	Specialisation Courses		
IRM 762	Content Management	2	Compulsory
FSC725	Database Management Systems II	2	Compulsory
FSC 726	Advanced Programming and Data Structures	2	Compulsory

FSC 746	Management Information and Decision Support Systems	2	Compulsory
IRM 747	Corporate Knowledge Management	2	Required
IRM 775	Information Architecture and Knowledge Organization	2	Required
IRM 766	Information Security	2	Required
	Sub-Total	**14**	
	Sub-Total (Compulsory and Required Courses)	**38**	
	Electives		
	Selected from ARCIS courses and approved courses in other departments	**7-22**	
	TOTAL	**45-60**	

Web Application Development Specialisation

This specialisation aims to equip students with knowledge and skills to develop and manage systems for the identification, acquisition, structuring, formatting, storage and provision of information content for organizations through intranet and Internet channels. Students will be equipped with knowledge and skills in interface design, information architecture and organization, middleware programming and backend database design and development necessary for the development of web applications and content management systems.

The degree for this area of specialisation shall be designated Master of Information Resources Management (Web Application Development)

Summary of courses for specialisation

Course Code	Course Title	Units	Status
	Core Courses (Common for all Specialisations)		
FSC 701	Introduction to Information Science and Theory	2	Compulsory
IRM 702	Research and Quantitative Methods for Information Professionals	2	Compulsory
FSC 715	Organization of Data and Information Sources	2	Compulsory
IRM 717	Online Searching	2	Compulsory
FSC 721	Information Systems Analysis, Design and Evaluation	2	Compulsory
FSC 724	Database Management Systems I	2	Compulsory
FSC 731	Information Users, Sources and Systems	2	Compulsory
FSC 736	Technical Writing and Presentation	2	Compulsory
FSC 741	Management of Information Resources	2	Compulsory
FSC 755	Information Technologies	2	Compulsory
IRM 794	Industrial Attachment	2	Compulsory
IRM 799	Seminar Paper	2	Compulsory
	Sub-Total	**24**	
	Specialisation Courses		
IRM 762	Content Management	2	Compulsory
IRM 775	Information Architecture and Knowledge Organization	2	Compulsory
FSC 728	Web Content Management	2	Compulsory
FSC 729	Web Application Development	2	Compulsory
FSC 727	Man-Machine Interface and Ergonomics	2	Required
FSC 726	Advanced Programming and Data Structures	2	Required
IRM 770	Information Business Process Analysis	2	Required
	Sub-Total	**14**	
	Sub-Total (Compulsory and Required Courses)	**38**	

	Electives		
	Selected from ARCIS courses and approved courses in other departments	**7-22**	
	TOTAL	**45-60**	

Information Management Practice Specialisation

This specialisation aims to equip students with knowledge and skills to provide different types of outsourced research, support and management consultancy services to organizations in the areas of information search and analysis, contract research, organizational system analysis and evaluation, software evaluation and selection, assessment of information systems proposals, , proposal development and writing, technical report writing and presentation, use of software including for statistical analyses, spreadsheet analyses, presentation, graphics, project management, etc.

The degree for this area of specialisation shall be designated Master of Information Resources Management (Information Management)

Summary of courses for specialisation

Course Code	Course Title	Units	Status
	Core Courses (Common for all Specialisations)		
FSC 701	Introduction to Information Science and Theory	2	Compulsory
IRM 702	Research and Quantitative Methods for Information Professionals	2	Compulsory
FSC 715	Organization of Data and Information Sources	2	Compulsory
IRM 717	Online Searching	2	Compulsory
FSC 721	Information Systems Analysis, Design and Evaluation	2	Compulsory
FSC 724	Database Management Systems I	2	Compulsory
FSC 731	Information Users, Sources and Systems	2	Compulsory
FSC 736	Technical Writing and Presentation	2	Compulsory
FSC 741	Management of Information Resources	2	Compulsory
FSC 755	Information Technologies	2	Compulsory
IRM 794	Industrial Attachment	2	Compulsory
IRM 799	Seminar Paper	2	Compulsory
	Sub-Total	**24**	
	Specialisation Courses		
IRM 776	Setting up and Managing Information Businesses	2	Compulsory
IRM 779	Information and Information Technology Training Design and Implementation	2	Compulsory
FSC 744	Design and Marketing of Information Products	2	Compulsory
IRM 777	Research and Development Management	2	Compulsory
IRM 765	Social and Ethical Issues in Information Technology & Services	2	Required
IRM 771	Consumer Behaviour and Market Research	2	Required
IRM 773	Information Industry Trends and Strategies	2	Required
	Sub-Total	**14**	
	Sub-Total (Compulsory and Required Courses)	**38**	
	Electives		
	Selected from ARCIS courses and approved courses in other departments	**7-22**	
	TOTAL	**45-60**	

REGISTRATION

1. Students must register for a minimum of 45 units and a maximum of 60 units of courses at the 700-level, including all compulsory and required courses.
2. The common core compulsory courses to all areas of specialisation, totalling 24 units, are: FSC 701, IRM 702, FSC 715, IRM 717, FSC 721, FSC 724, FSC 731, FSC 736, FSC 741, FSC 755, (all 2 units each), IRM 794 (Industrial Attachment, 2 units), IRM 799 (Seminar paper, 2 units).
3. Each area of specialisation specifies four additional compulsory courses (8 units) for the specialisation, as specified in the tables for the different areas of specialisation below.
4. Each area of specialisation specifies three required courses (6 units) for the specialisation, as specified in the tables for the different areas of specialisation below.
5. All other courses offered in the programme or in other graduate level programmes offered by the Centre, and not specified as common compulsory courses or as specialisation compulsory or required courses, may be taken as electives by students offering the specialisation, along with other approved elective courses from other departments, up to a maximum total of 60 units for all of compulsory, required and elective courses.

DETERMINATION OF RESULTS

1. All courses shall be assessed on the basis of a maximum mark of 100 and the pass mark shall be 40.
2. The CGPA system shall be used for the computation of final results, and the CGPA points shall be determined as shown in the following table

Mark	Letter Grade	Points Grade
70 marks and above	A	7
65 – 69 marks	A-	6
60 – 64 marks	B+	5
55 - 59 marks	B	4
50 - 54 marks	B-	3
45 – 49 marks	C+	2
40 – 44 marks	C	1
Less than 40 marks	D (Failure)	0

3. The overall CGPA for a student intending to graduate shall be calculated as the weighted average of all CGPA points obtained in all courses taken in the programme, provided that the student passes (a) all the compulsory courses (38 Units), plus (b) six (6) units of required courses with minimum 30 marks in each course.
4. The programme is designed to equip its graduates with knowledge and skills for professional practices in different careers in the information industry only, and the Master of Information and Knowledge Management degree cannot be used to seek admission into the MPhil, MPhil/Ph.D or Ph.D programmes at the Centre.

DESCRIPTION OF COURSES

Course Code	Course Title and Description	Units	Contact Hours (Lecture: Practical)	Status	Remarks
FSC 701	**Introduction to Information Science and Theory** Definition of basic terminology; Distinguishing information from communication, data, knowledge; Role and value of information in society (local, national, global); Information divergence and coding , coding theory, Huffman/arithmetic/Ziv-Lempel coding; Information sources and channels; Channel characteristics, channel capacity, channel models; Entropy, entropy as a measure of semantic content; Ergodicity, conditional entropy and mutual information; Data compression and error correction; Lower bound of achievable data compression; Origins and growth of information science;	**2**	**30**	**C**	

	Relationship to other disciplines; Educational innovations; Career prospects for information scientists; Overview of the M. Sc. programme.				
IRM 702	**Research and Quantitative Methods for Information Professionals** Scientific and humanistic research; Research problems and objectives – knowledge finding versus product development; Research proposals; Research questions, hypotheses, variables; Methodological concepts and strategies – research designs, population, samples, sampling methods; Instrument selection, design and validation. Implementation – data collection and analysis; Report writing: content/structure, fact finding versus product development. Statistical analysis concepts – scales of measurement, probability, parametric/non-parametric, univariate/multivariate, descriptive/explanatory; Basic statistical methods: frequencies, descriptives, cross tabulations, t-test, ANOVA, correlation, regression analyses. Graphs and charts; Use of statistical analysis software – Excel, SPSS, SAS, Quantitative Software for Business (QSB).	**2**	**20 : 30**	**C**	
FSC 715	**Organization of Information and Data Sources** Fundamentals of classification and organisation of documents: general principles, LC, UDC, Colon; automatic classification, Bibliographic record standards: MARC, ISO; subject indexing; general principles, semantics and syntax; assigned indexing; pre-coordinate and post-coordinate indexing; indexing language: design, vocabulary control, construction and use of thesaurus; derived indexing; abstracting techniques: general principles, types of abstracts, automatic abstracting.	**2**	**30**	**C**	
IRM 717	**Online Searching** Introduction and core concepts; data versus information search problems; Search flow: interactions, interfaces, strategies and tactics; Internet information sources and services: mail, electronic journals and newsletters, database services; virtual libraries, OPACS, repositories, blogs, newsgroups, forums; Evaluation of Internet resources and services; Internet developments and issues associated with the use of the Internet. Abstracting and indexing services; Controlled and natural language vocabularies; Search engines and directories; Web search models; Natural language searching; Indexing, retrieval and display algorithms and criteria used by search engines; Advanced search operations and query refinement.	**2**	**15 : 45**	**C**	
FSC 721	**Information Systems Analysis, Design and Evaluation** Basic concepts associated with information systems; general procedure for the development of an information system; User needs assessment; Techniques for describing systems; Development of design specifications, selection of hardware and software; Other methods for implementing the system; Determination of records structure; Determination of search procedures; Development of system-user interface; Provision for backup; Provision for evaluation or records, files, databases; Techniques for evaluating systems.	**2**	**30**	**C**	

FSC 724	**Database Management Systems I** Introduction/rationale: Brief history, pros and cons, data independence; Data Modelling; Conceptual data model, entity-relation model; Logical data modelling: Relational, hierarchical, network; Relational data model: Normalization, 1st, 2nd, 3rd and Boyce-Codd normal forms, relational algebra, and SQL; Query optimisation techniques; Physical storage organizations: Basic (sequential, direct, indexed) and higher level (list, multilist, ring, inverted).	**2**	**15 : 45**	**C**	
FSC 725	**Database Management Systems II** Database management issues: Transactions and integrity, failure and crash recovery, concurrency control, serialisability, and privacy and security; Distributed database systems: Transparency, fragmentation, heterogeneity, and querying; Object-oriented database systems; Concepts, inheritance, polymorphism; Practical systems: Database design, implementation using commercial database software.	**2**	**15 : 45**	**E**	Compulsory for Database design and Administration Specialisation
FSC 726	**Advanced Programming and Introduction to Data Structures** Categorization of data structures: arrays, linked lists, stacks, and B-trees; File structures: sequential file, inverted file, hashed file, and ISAM; Methods of interrogation for each file structure; Organization of files into a database; Database models: relational, hierarchical, and network; Data manipulation: interrogation, updating; Relationship of data structures to retrieval and maintenance; Programme design: top-down approach, parameters, functions and subroutines, procedures, programming decisions; File and text processing: Searching, sorting, matching; Practical applications using an appropriate object-oriented programming language.	**2**	15: 45	E	Compulsory for Database design and Administration specialisation Required for Web Application Development specialisation
FSC 727	**Man-Machine Interface and Ergonomics** Introduction to human recognition: perception, attention, pattern recognition, memory, representation of knowledge, language, problem solving, reasoning, and decision making, with implications for user interface design; Issues affecting users of information, equipment and systems; User-friendly developments; Impact on workers; Sociological effects of emerging information technologies; New training methods and needs for standardization; Concepts of ergonomics, physical work environment, hardware factors, optical requirements, psychological and social factors.	**2**	**30**	**E**	Required for Web Application Development specialisation
FSC 728	**Web Content Management** Web content management concepts: content, multichannel publishing, tagging, content management; Content Management Systems (CMS) – nature, and uses functionality; Acquiring, preparing and managing content for Content Management Systems: Form and template development and deployment. Web content publishing using Dreamweaver CS 4: Adding text to web pages; Text formatting, links, images, tables; Overview of Hypertext Markup Languages – Hypertext Markup Language (HTML), Extensible Hypertext Markup Language (XHTML). Introduction to Cascading Style Sheets; Introduction to Dynamic HTML; Web	**2**	**15 : 45**	**E**	Compulsory for Web Application Development specialisation Required for Database design and Administration specialisation

	hosting.				
FSC 729	**Web Application Development** Internet and web technologies and processes: services, browsers, web page layout; Web development process; Cascading Style Sheets (CSS): setting up, formatting contents with styles, layout styles, CSS style switcher; Client-side programming: Java script fundamental, data types and variables, decisions, loops, functions; Object-based programming with Java script. Server-side programming: Introducing PHP, data types and variables, decisions, loops, functions. Object-based programming with PHP; Working with Files; Creating databases with MySQL; Connecting to Databases within PHP.	**2**	**15 : 45**	**E**	Compulsory for Web Application Development specialisation
FSC 731	**Information Users, Sources and Systems** Uses of information; The information user: characteristics, contexts and environment, information needs, and user groups; Information sources: formal and informal sources, primary and secondary sources, databases and databanks; Information dissemination and flow patterns: publication cycle, scholarly communication, information gatekeepers, invisible colleges, theories of diffusion, etc; Information seeking: behaviours, strategies and application and evaluation; User education, sensitisation and orientation: content, target groups, evaluation and management.	**2**	**30**	**C**	
FSC 736	**Technical Writing and Presentation** Review of information products and services that involve technical presentation; Factors affecting the sequencing, expression, exposition and presentation of ideas; Editing, layout and related matters; Review of printing and publishing practices and criteria; Management issues.	**2**	**30**	**C**	
FSC 741	**Management of Information Resources** Nature and types of information and information technology organizations; Organizational and information resources and systems in organizations; Information resources and productivity; Managerial levels, roles and functions - planning, organizing, staffing, controlling, etc; Organizational and managerial concepts, philosophies and theories – systems, goals, strategies, motivation, leadership, delegation, etc; Organizational communication and information flow; Overviews of organizational function units and processes – strategic management, human resource, accounting and finance, research and development, production/operations, supply chain, sales/marketing, information services, management administration, Case studies of organizational structures, human resources and work processes in information service organizations: data centres, libraries, archives/record registries, support service centres, publishing houses, media houses, management consultancy firms, software companies, telecommunication firms, etc. Total quality, change na conflict management concepts and strategies; Environmental, ethical, legal and professional issues in information and information systems management.	**2**	**30**	**C**	
FSC	**Design and Marketing of Information Products**	**2**	**30**	**E**	Compulsory

744	Definitions - information products, services , sources and systems; Information life-cycle activities and value-adding processes; Information age, society, economy; Information industry – definitions and subsectors; Content and conduit information products and services; Types of information products and services; Information entrepreneurship, research and innovation; Information, research and management consultancy; Information product and service design – principles and models; Production and costing principles and functions; Information product and service markets, consumer behaviour and pricing; Marketing principles for information businesses; Ethical, social, legal and professional issues in the design and marketing of information products and services; Review of world-wide trends in the design, development and marketing of information products and services; Current developments and trends in the Nigerian information infrastructure, industries and markets.				for Information Management Practice specialisation
FSC 746	**Management Information and Decision Support Systems** Introduction: history and development of DBMS, MIS and DSS, dependence of MIS/DSS on DMMS; The MIS/DSS spectrum: problems types, data types, audience, system capability; Decision making and management style: information overload, data presentation, Information requirement determination, Strategic planning; Enterprise analysis; Critical success factors; Review of data structuring (normalization); Retrieval query languages and query formulation; Database administration, role of data dictionary/directory. "What if" capability, including simulation: Applications of MIS/DSS; Problems and opportunities in the integration of external data; Knowledge-based systems and expert systems as extensions of MIS/DSS.	**2**	**30**	**E**	Required for Corporate Knowledge Management specialisation Compulsory for Database design and Administration Specialisation
IRM 747	**Corporate Knowledge Management** Knowledge, information and data continuum; Organizational knowledge and intellectual property – definitions and categories; Organizational knowledge, strategy and competitiveness; Knowledge management (KM) – definitions, contexts, levels, activities; KM philosophies, principles and methods; Scientific, social, indigenous and corporate knowledge networks; Economics of knowledge creation and use; Institutional and socio-political aspects of information and knowledge; Knowledge transfer, diffusion and innovation process; KM processes: creation, transfer, documentation, reuse. Knowledge-sharing behaviours and barriers. Capturing and documenting tacit knowledge. Knowledge policies in organizations. Research, development and innovation practice; Information and knowledge audits; Knowledge architecture, classification, taxonomies; Ontologies; Knowledge management technologies and systems - Content management technologies, Web management technologies, Document management methods and technologies, XML application programming, topic maps, artificial intelligence and data mining systems and software. Knowledge policies and strategies in organizations.	**2**	**30**	**E**	Compulsory for Corporate Knowledge Management specialisation

	Management of KM projects. Practicum and skill development.				
IRM 748	**Information Systems Project Management** Project management terms, concepts, techniques, and tools. Information systems project life cycle, key project metrics, critical success factors, time, budget and functional quality requirements; Information systems project work contexts, environments and organisations; Analysis of IS projects with work breakdown structure (WBS) methods; Project charters/blueprints; Project scheduling using CPM/PERT; Budgeting, costing and fund flow analyses; Staffing and organizational plans; Technical, economic and financial feasibility analyses; Systems development approaches: lifecycle, prototyping, agile methods, RAD, etc; Project buffers, crashing and resource levelling. Project implementation and control: Benefits and drawbacks of outsourcing; Risk management planning and process; Information Systems deployment, change management and adoption/use. Project evaluation methods; Practical Use of project management software – MS Project, Team Up, etc.	**2**	**30**	**E**	
FSC 755	**Information Technologies** Information technology concepts, developments and roles: convergence, globalization, diffusion, obsolescence, digital divide, competitive value, as basis of strategic military and competitive power, etc; Computer technologies: architectures, storage processing and input/output devices, performance parameters; Computer software: system and application software, open source software (OSS); software acquisition/development methods – strengths and weaknesses; Computer networks, standards and configurations; Communication technologies: media, standards, protocols, configurations, implementation, security, wireless and mobile networks; User interface and ergonomic factors, E-business and e-commerce applications; Information technology and society: ethics, security and policy issues; IT application areas – education, health, agriculture, finance, government, commerce, development; IT deployment, diffusion and use in African societies – opportunities and challenges.	**2**	**30**	**C**	
FSC 757	**Introduction to Artificial Intelligence and Expert Systems** Definition of artificial intelligence; Historical background of artificial intelligence; Research areas within AI: natural language processing, expert systems, image processing, machine learning, game playing, search, problem solving, theorem proving and logic programming, etc.; Introduction to expert systems: Types and components; Knowledge acquisition and representation; Building tools for expert systems; Evaluation of expert Systems.	**2**	**30**	**E**	Required for Corporate Knowledge Management specialisation

IRM 761	**Information Policy, Industry Regulation and Strategy** Definition of concepts: policy, legislation, strategy; Overview of ethical theories and how they inform policies and practices; Legal, economic, cultural and social contexts of cyberspace; Electronic commerce trends and requirements; National and global regulation and governance of electronic commerce; Legal issues in electronic transactions: digital signatures, privacy requirements, contractual relations, safeguards; National information and information technology (IT) policies and legislation; Review of international agreements concerning trans-border flow of information and information technology products and services: copyright, intellectual property, privacy, censorship, equity of access, freedom of access, professional liability, etc; Issues and challenges in developing and implementing policies and legislation at the national level; Corporate information technology strategy and policy; issues, frameworks and procedures; Review of organizational information and IT strategy and policy documents.	**2**	**30**	**E**	
IRM 762	**Content Management** Content – definitions, types, format, structure. Content management (CM) contexts – publishing, web, learning, enterprise, etc; Content management objects – text, multimedia, processes, etc; Content management types - Web Content Management (WCM), Digital Asset Management (DAM), Document/E-records Management (DM/ERM), Enterprise Content Management (ECM), Component Content Management (CCM); Content management concepts and requirements – components, granularity, reuse, multi-channel publishing, strategy, compliance, policy, security, workflow, etc. Content management frameworks; Content databases and repositories – features, requirements, design; Content identification, classification and tagging schemes and metadata; Content management technologies for content acquisition, analysis, tagging, integration; CM workflow systems; Web tools for content management – forum, chat, blogs, wikis, document image processing tools, RSS feeds and syndications, etc. CMS hardware and software; Enterprise content management programmes and projects – planning and implementation. Learning management systems – features, software, development; Practicum and skill development.	**2**	**30**	**E**	Compulsory for Corporate Knowledge Management, Database Design and Administration, and Web Application Development specialisations
IRM 765	**Social and Ethical Issues in IT and Services** Theories of society; Social and ethical issues in workplaces, marketplaces: rights, standards, regulation; Reconciling social and ethical issues with technology; Ethical concepts - values vs. ethics, descriptive vs. normative aspects; Theories of ethics: absolutism, relativism, consequentialism, utilitarianism, deontology, Kant, approaches based on socio-biology and cognitive science; Professional codes of ethics; Case studies: technology transfer, medical informatics and patient records, freedom of information versus privacy, genomics and cloning, safety of medical devices, research involving humans and animals, etc. Spam, chat rooms and e-	**2**	**30**	**E**	Required for Information Management Practice specialisation

	commerce regulation; Privacy: ubiquitous computing, data protection standards, cookies.				
IRM 766	**Information Security** Information security – data, database, computer, network aspects. Information security threats, vulnerabilities, attacks and crime. Cryptography and related security mechanisms: stream ciphers, block ciphers, public key techniques, MACs, digital signatures, certification authorities; Computer security: operating systems, policy, implementation. Network security: generic technologies, user identification techniques, authentication protocols, key distribution mechanisms; Database security: data validation and integrity control, concurrency control, failure recovery, access control policy. Data security: access, confidentiality and privacy policies and legislation; Secure electronic commerce and other applications, smart cards/tokens security and applications; Information security standards and evaluation criteria; Information systems auditing, monitoring and intrusion detection; Digital forensics; Disaster and crisis management.	**2**	**30**	**E**	Required for Corporate Knowledge Management and Database design and Administration specialisations
IRM 767	**Government Information Systems and E-Governance** Public sector – structure, units and culture; Public sector management issues – stakeholders, plans, economics, politics and conflicts; Development and social objectives, strategies and critical success factors for developing countries; Evolution, roles and levels of IT use in the public Sector; IT use in government – experiences and lessons; IT development and use policies in the public sector; Reengineering of public sector processes; Information resources management in public sector - information assets, processes, quality, availability and access; Data/information security; Hardware and software requirements; Human resource requirements; Internet delivery of government processes and services – e-administration, e-participation, e-government, e-governance, e-legislation, e-procurement; E-government philosophies, theories and models; E-government readiness indicators and measurement. G2G, G2C, G2B - goals, requirements, standards and services. Case studies.	**2**	**30**	**E**	
IRM 768	**Electronic Society** Electronic societies – evolution, concepts, theories and models. Social communication and integration theories - social bookmarking, social inclusion and citizenship, social exclusion, digital divides; Globalization and convergence of cultures, ideas, technologies; Freedom of expression, freedom of information and privacy issues; Trends in digital services, education, advertising, home services, civil society, online cultures; Political reporting, citizen journalism; electronic journalism: online newspaper, online audio and videos, animation, games, radio/TV streaming, etc; Social networking tools for supporting group interaction: chats, wikis, blogs, online social networks etc; Down sides of ubiquitous and social networking: cyber crime, groupthink and conformity; Cyber legislation.	**2**	**30**	**E**	
IRM	**Information Visualisation**	**2**	**20 : 30**	**E**	

769	Human cognition – concepts and models. Human-computer interfaces and interaction – concepts and models. User mental models; Information displays – concepts and models; Visual analytics - concepts and models; Information visualization reference model; Visualizing search results; Visualizing multimedia - graphs, 3D, animation, data and video streams; Principles of data presentation; Designing tables and graphs; Uses and misuse of colour; Dashboard design; Graphic design applications: budget data analysis, transactions data analysis, customer flash cards, business intelligence, multivariate analysis, radar graphs, etc. Practical use of information visualization and graphics software.				
IRM770	**Information Business Process Analysis and Management** Business processes – definition and elements. Business processes in organizations – value chaion model. Business process models. Business process modelling standards, languages and diagrams. Business process modeling languages. Universal modeling language (UML) approaches and cases. Business process management notation (BPMN) approaches and cases. Process, lifecycle and architectural reference models; Business process analysis of information businesses; SWOT analyses of information business processes; Business process redesign (BPR) frameworks and project management; Case studies.	**2**	**30**	**E**	Required for Web Application Development specialisation
IRM 771	**Consumer behaviour and Market Research** Concepts of the consumer – past, present, future. Philosophical, ethical and behavioural theories of consumption behaviour; Needs, experience, attitude and motivation theories; Influence of demographic, cultural and environmental factors; Theories of planned behaviour, reasoned action and compulsive behaviour; Diffusion of innovation and technology acceptance theories; Consumer rationality and choice; Consumer decision-making processes - black box and other models; Consumer and demand theories; Mathematical models of consumption behaviour; Markets – definition and types. Marketing mix concepts, models and strategies; Market research and analysis; Advertising – goals and strategies; Ethical and legal issues in consumption, marketing research and advertising. Market research skill development through practicum.	**2**	**30**	**E**	Required for Information Management Practice specialisation
IRM 772	**Intellectual Asset Management** Intellectual capital, assets and property – basic concepts; Intellectual assets categories and examples – human, structural , relationship; Information/knowledge and technology/product dimensions; Organizational learning, innovation and performance; Identifying corporate intellectual assets through information and knowledge audits; Valuing and accounting for human and intellectual assets – strategies and methods; Developing intellectual assets - knowledge and human resource management strategies and techniques; Intellectual asset and property rights – copyright, patents, etc; Intellectual asset management strategy - models, policies, specification, implementation; Intellectual asset management structures, resources and	**2**	**30**	**E**	Compulsory for Corporate Knowledge Management specialisation

	operations – internal structures, external networks, operations and logistics, human resources, financing.				
IRM 773	**Information Industry Trends and Strategies** Information industry concepts, subsectors and models. Macroeconomic concepts and models. Roles and interconnections of information and non-information industries in national economies. Information and information technology industries; Information industries - enabling content, media and technologies; Interconnectivity among information and non-information industries – agriculture, manufacturing, services; Understanding Input-output models of national economies; Interconnectivity among information industry subsectors; Information industry policy and legislation analyses; Information life-cycle, products and services; Information industry value chains; Information markets definition, segmentation and analyses; Cross-border flows of goods, services and investments in information industries. Case studies of information industry subsectors and firms, focusing on strengths and opportunities, weaknesses and threats, competitive advantages and strategies; Trends in information industry labour markets; Development of information industries - government and private sector roles.	**2**	**30**	**E**	Required for Information Management Practice specialisation
IRM 774	**Information Management Problem Solving, Team and Leadership Skills Development** Problem solving and creativity concepts, principles and methods; Participatory and group decision-making concepts and models; Team building, participation and management skills; Team work processes, dynamics and conflict management; Leadership concepts, theories and behaviours; Information management problem solving, creativity and innovation; Brainstorming techniques; Practical collaborative use of Web 2.0 tools for problem solving and creativity – chats, forum, blogs, wikis; Practical use of open source group decision support software; Web 2.0 and open source group decision support software to be used to document and assess students as they alternate between membership and leadership roles in several teams to identify and solve information and knowledge management problems. Students develop their skills at team problem solving sites identified by lecturers and students, and problem solutions must be feasible within the implementation timeframe and financially viable for the host organization.	**2**	**15 : 45**	**E**	
IRM 775	**Information Architecture & Knowledge organisation** Website organization and labelling systems; website taxonomies & sitemaps/blueprints; website content management systems; metadata schemes for database-driven websites and web applications; website navigation systems, way finding devices and flow charts; website page layout conventions and wireframes; Website search systems; controlled vocabularies: lists, synonym rings, classification schemes, thesauri; contextual research and competitive analysis; content research, content analysis and inventory; user-centered/user experience design: user research, groups, needs,	**2**	**30**	**E**	Compulsory for Corporate Knowledge Management and Web Application Development specialisations Required for Database design and Administration specialisation

	tasks; personas & scenarios; usability; usability testing, information architecture strategy, design and documentation; information architecture in practice; ethics and diversity, education and careers.				
IRM 776	**Setting Up and Managing an Information Business** Entrepreneurship and innovation theories; Entrepreneurial processes; Information entrepreneurship. Identifying & analyzing innovative opportunities; Developing information business ideas; Planning and building information services and information technology ventures; Identifying markets and sources of revenue; Industry and competitor analysis; Value chain analysis of a business; Cost structure analysis of business processes; Developing an effective business model; Developing an efficient operations model; Creating a venture team; Business venture registration processes; Human resource capacity building and organizations; Marketing products and services; Developing financial plans and budgets and obtaining finance; Strategies for growth; Developing an information system to support the business; Protecting corporate intellectual property (IP) and information resources; Proposal writing and presentation. Case studies of successful information and IT businesses and entrepreneurs.	**2**	**30**	**E**	Compulsory for Information Management Practice specialisation
IRM 777	**Research and Development Management** Research and development (R&D); Creativity, innovation, problem-solving, entrepreneurship; Role of research and National Systems of Innovation (NSI) in development; Research and development (R&D) management – upstream and down steam processes, frameworks and models; Research management office (RMO) organization and processes; Analysis and monitoring of R&D processes to increase research and product development performance and productivity; Institutions, networks and databases for managing R&D; Research proposals – skills development and support; Research funding sources and requirements; Managing research and researchers: models and strategies; Identifying and protecting intellectual property: patents, copyrights, etc; Identifying and testing product development ideas; Facilitating collaboration, partnership and joint ventures between research and commercial organizations; Budgeting and financial analyses of product development costs; Monitoring and improving the product through planning tools; Planning continuous incremental product improvements to maximize R&D investments; Use of R&D management software; Case studies in R&D management.	**2**	**30**	**E**	Compulsory for Information Management Practice specialisation
IRM 778	**Open Systems and Technologies** Definition of systems, characteristics of systems, key open system concepts and definitions, computer architecture; operating systems; networks; and distributed systems, the open systems lifecycle, crucial open systems elements: interoperability, portability and integration. Open systems standards: OSI, Data interchange standards. Applications of open systems. Open access technologies; open	**2**	**30**	**E**	

	courseware, Open system software, open software platforms -databases, web servers, office productivity, etc. Introduction to programming in OSS environments. Limitations of open systems.				
IRM 779	**Information and Information Technology Training Design & Implementation** Relationships between information technology and data processing, information management, knowledge use, decision making and managerial functions; Education and skills development contexts; Human resource capacity building for organization and information systems and services projects; Pre-service, in-service, on-site and off-site training; Overview of education/training philosophies and theories; Training goals, objectives, methods, activities, assessment; Training programme processes and resources – market research and customer needs assessment, curriculum design, event scheduling and management; budgeting and financing, marketing and promotion, follow-up, information/database management; Resource people management; Preparation, printing and publishing training content materials; Training administration and logistics; Training evaluation and measurement techniques. Training proposals and reports. Gender, cultural and professional issues.	**2**	**30**	**E**	Compulsory for Information Management Practice specialisation
IRM 794	**Industrial Attachment** Practical experience of 12 weeks in information technology, systems and services departments of approved organisations	**2**		**C**	
IRM 799	**Seminar Paper** Each student will undertake a rigorous study of an assigned area of information science, systems or technology and prepare and submit a report on a topic in the area that will be presented in a seminar during the semester.	**2**		**C**	

C = Compulsory; R = Required; E = Elective.