



## **INNOVATIONS IN HIGHER EDUCATION - A NEW MODEL IMPLEMENTED IN MCA DEGREE PROGRAMME OF SRINIVAS UNIVERSITY**

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### **Abstract:**

*During 1990's as an innovative effort to develop the qualified professionals in Computer & IT sector, University Grant Commission (UGC), India, has allowed non-computer graduates to do three years Masters degree programme in Computer Science (MCA). Even after introduction of B.Tech programme in Information technology, the MCA programme remain both popular and relevant. MCA programmes are run throughout the country, as they are seen to be relevant for the programming in IT industries. Although critics of the programmes have been numerous, large companies and increasingly small ones as well continue to see real value in the MCA. But due to lack of innovations and autonomy, MCA degree programme offered by many Universities in India have failed to attract both industries and students. In order to improve the quality of MCA graduates & attract BCA graduates to the programme we have proposed a new MCA model with dual specializations on programming & networking at Srinivas University. In this paper, we have presented the objectives, special features, regulations, core subjects to be studied along with their credits, elective areas and subjects, types of projects to be completed in each semester, examination scheme etc. of this two years, four semester MCA programme. This course is expected to supply more quality & competitive graduates for IT companies.*

**Index Terms:** Innovations in Computer Application Courses & Dual Specialization MCA Programme

### **1. Introduction:**

Twentieth century had witnessed many technological breakthroughs like automobile technology, bio-technology, nuclear technology, laser technology, space technology, communication technology, artificial intelligence and robotic technology, computer and information technology, and many more. Out of all these technology advents, computer science and information technology are considered as a boon to the civilization of mankind due to their general purpose supporting abilities. Research and development in hardware and networking supported the progress of the technology in terms of the speed, size and the power consumption. Further, the development in software technology through evolution of customized and general purpose software, their testing, applications, and maintenance in many field of automation of various production, service and control processes created huge demand for computer and information technology usage in all the business entities. This created huge demand for skilled professionals in computer science and information technology. In India, to cater such demand, initially many small training were started with few weeks to month's programmes but they could not satisfy the demand as well as failed to develop high quality professionals in this area. As a result, during 1990's as an innovative effort to develop the qualified professionals in Computer & IT sector, University Grant Commission (UGC), India, has allowed non-computer graduates to do three years Masters degree programme in Computer Science (MCA). Even after introduction of B.Tech programme in Information technology, the MCA programme remains both popular and relevant. MCA programmes are run throughout the country, as they are seen to be relevant for the programming in IT industries. Although critics of the programmes have been numerous, large companies and increasingly small ones as well

continue to see real value in the MCA. But due to lack of innovations and autonomy, MCA degree Programme offered by many Universities in India are failed to attract both industries and students.

## **2. MCA Program as Innovation in Indian Higher Education:**

Master of Computer Applications (MCA) programme is designed in such a way that a non-computer graduate, based on his interest, can acquire knowledge and skills required to develop, test and maintain high quality multi-application software programmes for reliable services in automation of industrial and business processes with enhanced securities. Due the length of the programme (duration of three years), and the breadth and depth in terms of its curriculum, the MCA professionals were trained not only to develop and maintain software, but also capable to do quantitative research in related areas of developments. As a result, during last 25 years, MCA graduates are able to enjoy top level organizational jobs in various industries. But as the time progress, the demand of computer graduated further enhanced and the basic computer education is introduced in high school as well as intermediate courses which created awareness of Computer education (both hardware and software) at undergraduate level. As a result a large number of skilled professionals were developed in undergraduate education level itself based on introduced courses like B.Tech, B.Sc., and BCA courses.

MCA is a professional Degree course, considered to meet the rising demand for qualified professionals in the area of Information Technology and its applications. It is an advancement over the BCA and BSc (CS / IT). Students looking to pursue a career in IT will find MCA the ideal fit for this purpose. The course takes a student through the fundamentals of computer systems to the more elaborate system design and architecture. The course is designed towards current and emerging issues in IT and business and provides a solid theoretical background and excellent practical exposure to the students in programming, computational theory, network and database management, mobile technologies etc to meet the growing manpower requirements of the Global IT Industry. Using an optimal combination of theory and practical, along with values & attitude the program seeks to equip the students with value based conduct, emotional maturity, analytical ability, cross functional capability and leadership skills to operate effectively in a highly demanding, multicultural global business environment.

## **III. Innovativeness of Private Universities in MCA Program:**

Private universities have to become innovative owing to two major reasons. Primarily, they have zeal to excel and based on such zeal, they use their autonomy to excel. Secondly they have invested huge amount of money for their huge investment without government subsidy and support for land, competitive infrastructure development, quality maintenance by appointing high quality faculty, brand building expenditure and spending on research & publications. Hence there is a heavy pressure on private universities to be innovative against government universities which in fact get continuous financial support and subsidy for infrastructure and day to day maintenance works [1-3]. When comes to MCA programme, the MCA graduates have to face competition not only from their peers but also from engineering graduates and post graduates in computer science and information technology. So unless MCA programme is made unique in terms of graduates ability to differentiate themselves in software development and applications, they will be looser in competitive job market. So to make MCA programme alive and to attract talented computer science non-engineering graduates for Masters degree programme, Private universities are making the course more and more innovative so that the postgraduates of MCA can differentiate

themselves in the industry to get better and challenging jobs. In case of MCA programme, the private universities give emphasis on various issues to differentiate and add values to their programmes which include (1) quality education, (2) infrastructure, (3) Progressive curriculum, (4) Varieties and flexibility, (5) industry collaboration, (6) foreign exposure, (7) better placement support, and (8) suitable examination system, and (9) systematic alumni network. Students can get better benefit compared their counterparts in public universities [4].

**4. Comparison of MCA Program of Private & Government Universities:**

<b>S.No</b>	<b>Features</b>	<b>Private University</b>	<b>Govt. University</b>
1	Duration of MCA programme for computer background students	Two years	Three years
2	Number of Subjects	Eight to ten	Five to six
3	Number of Theory papers in each semester	Five - Six	Three - Four
4	Number of Practical laboratory papers in each semester	Two	Three to Four
5	Number of Projects in the entire course	Four	One
6	Examination system	Focused Examination & evaluation system	Rigid Examination & evaluation system
7	Announcement of Examination result	Within a week after the exam	Several months
8	Promotion rules	Flexible & student friendly	Rigid and
9	Evaluation method	Competency based flexible system	Credit based rigid system
10	Choice Based Curriculum	Choice of Specializations	Choice based electives
11	Nature of Syllabus	Latest & Industry oriented	Obsolete and Faculty oriented
12	Syllabus revision	Every year	Once for three to five years

**5. MCA programme - A Case of Srinivas University:**

**(i) About Srinivas University:**

Srinivas University, Mangalore, is a Private Academic & Research University established in Karnataka State during February 2015, recognized by the University Grants Commission (UGC), New Delhi. The University is established by A. Shama Rao Foundation, Mangalore and Srinivas Group of Colleges with a view to bridge the gap between conventional education and the next generation education requirements. The University is committed to transform society through its innovative model of higher education in all areas of Sciences, Engineering, Technology, Management, Social Sciences and Humanities.

As a non-profit entity, Srinivas University aims to bring in innovations through curriculum design and implementation, teaching-learning process, examination and evaluation so that the students stand out differently to become star performers. The vision of the university is to be a trendsetter among universities and build students who emerge as leaders with competence, conscience and compassion by empowering them

with sound education and high standards of ethical and professional behaviour enabling them to build and promote a more humane, just and sustainable world for future generations. The mission is to provide an exceptional learning environment where students can develop and enhance their leadership and teamwork skills, creative and intellectual powers and passion for learning by providing an uncompromising standard of excellence in teaching; embodying the spirit of excellence to educate the citizen-leaders of society with distinction (Aithal et. al. 2016) [5]. The MCA programme of Srinivas University is the outcome of its innovative thinking and value addition ability through student centric curriculum design.

**(ii) Objectives of the Programme:**

The broad objective of MCA programme is to prepare students for careers in software industry understanding and skills related to the use of Computers and its application. The educational objectives of the MCA program at Srinivas University are to enable the students to have a holistic and all-round grooming to be a thorough professional in the field of IT. Students are trained to have a sound foundation in the fundamentals of computer technology, a high level of practical skill in the use of that technology and at the same time, be sensitive to the issues prevailing in the society. It prepares the students to obtain the positions as System Analysts, Systems Designers, Programmers, Network engineers, network Managers, database administrators, IT Managers in any field related to information technology. The program, therefore, aims at imparting comprehensive knowledge with equal emphasis on theory and practice. The well balanced course significantly emphasizes on planning, designing and building of complex commercial application software and system software. The course also places equal importance on the functional knowledge in various areas. A full-time MCA course is not just a postgraduate programme; it is also a complete professional grooming of students for a successful career in the Software Industry. The Alumni of the MCA department are all well placed in top positions of the major IT companies in India and abroad. The core objective lays emphasis on the following:

- ✓ Train the students with the latest computer hardware and software technologies.
- ✓ Develop conceptual as well as analytical competencies in the areas of System development; Project Management; Network etc.
- ✓ To build the capability to anticipate and manage the change.
- ✓ Sharpen the communication and presentation skills.
- ✓ Understand the importance of ethical values.
- ✓ Prepare the students to be able to take decisions under risk and uncertain environment, especially in the area of global marketing.

**(iii) Special Features:**

- ✓ Industry friendly latest syllabus with individual/team projects in every semester.
- ✓ Dynamic, qualified and friendly teaching faculty with experience of more than 15 years
- ✓ MOU with IT industries to get students trained in Open Source Technologies PHP with MySQL, Ruby on Rails, Python and Android
- ✓ Networking subjects prepare students for CCENT, CCNA, CCNP, MCP, MCSA and MCSE certifications.
- ✓ Innovation examination system to make it student supportive.
- ✓ The Calendar of the Programme is planned in such a way that all successful students will get Provisional Degree Certificate by 20<sup>th</sup> April.
- ✓ Continuous Evaluation through Choice Based Credit Based Semester System.
- ✓ Guest lecture series from IT professionals & Researchers.

- ✓ Participation/publication opportunity in two national conferences in IT & Management area organized by the institution.
- ✓ Revaluation opportunity with personal seeing and supplementary exam before going to next semester.
- ✓ Non-credit papers on Communication skills and Project & Job search skills.
- ✓ Opportunity to do Research leading to Ph.D. in Computer Science.
- ✓ Institutional Study Materials prepared according to the Syllabus.
- ✓ Campus Placement Support with National & Multi-National Companies.
- ✓ Compulsory Certificate Programme on Android Application Development.

**(iv) Value Additions:**

- ✓ Well structured lectures with practical approach
- ✓ Experienced and dynamic, qualified teaching faculty
- ✓ Exposure to latest techniques: Java, .NET and Mobile Programming using Android
- ✓ Focus on newer dimensions of key topics like ERP, Data warehouse etc.
- ✓ High-tech multimedia gallery class rooms
- ✓ A well equipped library with more than 8000 titles in Management and IT with magazines and journals of national and International repute.
- ✓ Internet connection within the campus with Wi-Fi facility.
- ✓ State-of-the art computer centre.
- ✓ Hands on experience on open source computing by Professor Emeritus of USA
- ✓ Centre for Professional skill Development and Training
- ✓ Students Association activities
- ✓ Guest lectures series from IT professionals
- ✓ Industrial Visits
- ✓ Presentations on topics based on new advancements made in the IT sector
- ✓ Summer Placements/ Live Projects in companies engaged in software development Seminars
- ✓ Comprehensive Viva Voce & Mock Interview Sessions
- ✓ Adequate Transport facility
- ✓ Indoor and outdoor sports facility Hostel for both boys & girls.
- ✓ Special training and guidelines for further admissions in IIIT for M.Tech/Ph.D.
- ✓ Institution has 12 years of experience in computer science education
- ✓ Placement & Training cell to assist 100% placement

**(v) Career Opportunities:**

- ✓ Database Administrator
- ✓ Software Developer
- ✓ Web Developer
- ✓ IT Manager
- ✓ Hardware Professional
- ✓ Networking Engineering/Administrator
- ✓ Self Employment

**(vi) Regulations:**

The duration of the programme shall extend over 4 semesters (two academic years). Medium of instruction for all subjects and examination shall be English only.

- ✓ **Eligibility for Admission:** For MCA 2 Years (Lateral entry) candidate should be BCA/B.Sc (CS/IT)/ B.E. from recognized University with minimum of 50% marks in aggregate. B.Sc. (Electronics/Physics/Mathematics/Statistics) with not less than 50% marks will also be considered for networking specialization. The

students will be admitted on the basis of their score in Srinivas University Entrance Examination (SUCET)/C-MAT/KMAT. Based on rank in these test, students will be admitted to the programme as per the merit and availability of seats.

- ✓ **Admission Procedure:** All admissions shall be made through an entrance test conducted by appropriate body as approved by Srinivas University from time to time.
- ✓ **Time Limit for Completion:** The candidate shall complete the programme within six years from the date of registration in the programme. The term completing the programme means passing all the prescribed examinations of the programme to become eligible for the degree.
- ✓ **Attendance:** No candidate shall be considered to have pursued a regular course of study unless he/she is certified to have attended 75% of the total number of class room sessions conducted in each semester in each paper during his/her course of study. Any student not complying with this requirement shall not be allowed to appear in the semester examinations. A student not allowed to appear in the preceding semester examinations due to shortage of attendance, may appear in the papers of the preceding semester along with the papers of the current semester after making up the shortfall in the attendance.

**(vi) Core Subjects to be Studied Along with their Credits:**

The semester wise subjects and their teaching hours/week along with the distribution of total marks in each subject as internal marks and University examination marks is shown in table 2.

Table 2: Subjects for Lateral entry Scheme for MCA Programme of Srinivas University

SEMESTER I (21 Weeks)				
S.N.	Subjects Title	H/w or Credits	Internal Marks	Sem. Exam Marks
1	Advanced DataBase Technologies	4	30	70
2	Network Routing Technologies	4	30	70
3	Computer Networks and Protocols	4	30	70
4	Advanced .NET Technologies	4	30	70
5	System Administration	4	30	70
6	DataBase Technologies - Practical	3/2	30	70
7	Network Routing Technologies	3/2	30	70
8	Advanced .NET Technologies - Practical	3/2	30	70
9	Mini Project	2	-	50
10	Communication Skills for IT professionals	1 (Non-credit)	-	-
<b>Total</b>		<b>30H / 28Cr</b>		<b>850</b>

SEMESTER IV (21 Weeks)				
S.N.	Subjects Title	H/w or Credits	Internal Marks	Sem. Exam Marks
1	Advanced Web Technologies	4	30	70
2	Network Management	4	30	70
3	NOSQL and MYSQL Server Administration	4	30	70
4	Advanced Networking Routing Technologies or Java Technologies	4	30	70
5	Advanced System Administration	4	30	70
6	Advanced Web Technologies - Practical	3/2	30	70
7	NOSQL and MYSQL Server Administration	3/2	30	70
8	Advanced Network Routing Technologies or Java Technologies lab	3/2	30	70
9	Mini Project	2	-	50
10	IT Company Analysis	1 (Non-credit)	-	-
<b>Total</b>		<b>30H / 28Cr</b>		<b>850</b>
SEMESTER V (17 Weeks)				
S.N.	Subjects Title	H/w or Credits	Internal Marks	Sem. Exam Marks
1	Database Administration	4	30	70
2	Cloud Computing	4	30	70
3	Software Quality Assurance and Testing	4	30	70
4	Cyber And Network Security	4	30	70
5	Programming in Python	4	30	70
6	Database Administration - Practical	3/2	30	70
7	Software Quality Assurance & Testing Lab	3/2	30	70
8	Cyber And Network Security or Programming in Python Lab	3/2	30	70
9	Mini Project	2	-	50
10	Project & Job Search Skills	1(Non-Credit)	-	-
<b>Total</b>		<b>30H / 28Cr</b>		<b>850</b>

SEMESTER VI (20 Weeks)				
S.N	Subjects Title	H/w or Credits	Internal Marks	Sem. Exam Marks
1	Master Project & Report 1. Project Planning 2. Project Design & Development 3. Project Testing 4. Project Reporting 5. Project Presentation & Viva 6. Placement Support	25	150+ 150 (Viva)	400
<b>Total</b>		<b>30H/ 28Cr</b>		<b>700</b>

**(vii) Electives Areas and Subjects:**

➤ **Elective 1: Networking**

- ✓ Advanced Networking Routing Technologies
- ✓ Advanced Java Technologies

➤ **Elective 2: Programming**

- ✓ Advanced System Administration
- ✓ Object Oriented Programming with Python

**(viii) Types of Projects to be Completed in Each Semester:**

➤ **Type of Projects:**

The students are encouraged to do both individual and group projects in each semester as a part of their action based research curriculum. This will improve their experience of developing real projects by identifying opportunities, planning for bridging the gap, and facing the problems of real time programme development. Further, such action research experience boosts their confidence to face real world challenges. Accordingly, the MCA students of first semester are engaged in two types of projects apart from five theory papers and three practical papers. The two types of projects are (1) Individual project on IT industry analysis and (2) Group project on application software development for a service industry.

In the second semester, students work for individual projects. This project should be a working project and at the end students are encouraged to sell it or use it for online service to earn from it. In the third semester, students are again made to work in teams for live projects in collaboration with IT industry or any online business firm. Based on such project work, it is assumed that students will get offer from such company for their fourth semester full time project.

➤ **Evaluation of Projects:**

Guide for the project work and Chairman of the Department should certify that the project work is a bonafide work of the candidate while submitting the dissertation for final assessment. The guide and the external examiner will value the project work and require the candidate to defend dissertation in a viva voce. A panel consists of an internal examiner and an external examiner constituted by the Chairman of the Board of Examiners (B.O.E). and duly approved by the University will conduct the viva-voce examination of the Candidates.

Dissertation evaluation shall be done by internal and external examiners, who are identified by the Chairman of the panel constituted for the viva-voce examination and duly approved by the Registrar (Evaluation) on the recommendation of the Chairman of B.O.E. Internal guide shall be an internal examiner and an examiner in the panel duly approved by the University/external guide/co guide / shall be an external



examiner. In case of external guides from the Software Industry / R&D organization/University, where the students carried their project works during VI semester, to be invited as external examiners, such external examiners shall be approved by the Registrar (Evaluation) before commencement of the dissertation evaluation. An internal guide assigned for a candidate shall evaluate the project progress through presentation/demonstration by the candidate before finalising the project work and internal assessment marks shall be submitted to the chairman before dissertation submission for evaluation.

**(ix) Examination Scheme:**

The examination system is made student friendly by dividing the theory papers in each semester into two parts and conducting the examination two times in a semester as mid-semester examination and end-semester examination. This student friendly innovation is derived from Indian Institute of Management, Ahmedabad, Post graduate programme examination model [6]. Accordingly, the curriculum in each theory subject in a semester is divided into two parts and the internal examination and final examination to each part is conducted separately so that students have focus on depth of the subject rather than summery. This also helps students to take examination as challenge and test of their understanding ability rather than test of memory ability.

**A. Theory Papers:**

**Internal Marks:**

Internal Marks are based on Assignments, Internal exams, Class participation/presentation & Attendance.

S.No	Assessment Method	Marks
1	Assignments	10
2	Internal Exams	10
3	Attendance	05
4	Class Participation/Presentation	05
<b>Total</b>		<b>30</b>

**Semester Exam Marks:**

There will be two exams in each semester called Mid-Semester Exam & End-Semester Exams with equal wattages. First Exam (Mid-Semester Exam) will be conducted for 35 marks based on first part of the syllabus & the Second Exam (End-Semester Exam) will be conducted for 35 marks based on Second part of the syllabus.

S.No.	Semester Exam	Marks
1	First Exam (Mid Sem) - Chapters 1 - 3	35
2	Second Exam (End Sem) - Chapters 4 - 6	35

Pattern of Question Paper in Mid-Semester/End Semester Exam:

The question paper pattern in each Semester Exam for 35 marks consists of five short answer questions for 10 marks (two marks each) and Five descriptive questions of 5 marks to be answered out of six questions (two questions from each chapter) given.

No. of Questions	Type	Marks/Question	Total
5	Short Answer	2	10
5 out of 6	Descriptive	5	25
<b>Total Semester Marks(Mid/End)</b>			<b>35</b>

**B. Practical/Lab Papers:**

**Internal Marks:**

Internal Marks are based on No. of experiments/programmes executed, Lab assignments, Attendance, and Lab Etiquette & Participation.

S.No	Assessment Method	Marks
1	Assignments	10
2	No. of Program Execution	10
3	Attendance	05
4	Lab Etiquette & Participation	05

**Semester Exam Marks:**

There will be one semester end exam on laboratory experiments

S.No.	Semester Exam	Marks
1	First Experiment/program	30
2	Second Experiment/program	30
3	Laboratory Record Book (based on number of experiments/programs recorded)	10

**(x) MCA Sample Calendar 2016 - 2018 Batch:** (17/08/2016 to 20/04/2018)

The sample Calendar of MCA programme for the batch 2016-2018 is shown in Table 3.

**Table 3: Sample Calendar 2016 - 2018 Batch**

Leadership Development (LEAD) Training Program: 17/08/2016 - 22/08/2016
<u>III Semester Duration : 22/08/2016 to 31/01/2017</u> (21 weeks)
III Sem Classes : 24/08/2016 to 02/01/2017 (17 weeks)
Exam : 27/10/2016 - 31/10/2016 (Mid Sem.) & 21/12/2016 - 02/01/2017 (End Sem.) Mini Project 1 : 03/01/2017 to 31/01/2017 (4 weeks) {Project Presentation & Viva : 30/01/2017 - 31/01/2017 }
<u>IV Semester : 08/02/2017 to 10/07/2018</u> (21 weeks)
IV Sem Classes : 08/02/2017 to 11/06//2017 (17 weeks)
Exam : 01/04/2017 - 10/04/2017 (Mid Sem.) & 01/06/2017 - 11/06/2017 (End Sem.) Mini Project 2 : 11/06/2017 to 10/07/2017 (4 weeks) {Project Presentation & Viva : 08/07/2017 - 10/07/2017 }
<u>V Sem : 18/07/2017 to 30/11/2017</u> (19 weeks)
Exam : 26/09/2017 - 30/9/2017 (Mid Sem.) & 21/11/2017 - 30/11/2017 (End Sem.) Mini Project 3 : 18/07/2017 to 30/11/2017 (4 weeks) {Project Presentation & Viva : 29/11/2017 - 30/11/2017 }
<u>VI Sem Final Project : 01/12/2017 to 30/04/2018</u> (20 weeks)
Project Presentation & Viva : 17/04/2018 - 19/04/2018
April 19-22 : Final Placement Counselling/Offers to All Successful Students
<b>April 20th/2018 : Award of Provisional Degree Certificate</b>

**6. Student Benefits through Further Possible Innovations:**

Apart from the above mentioned features of MCA programme mentioned above, further innovations in the programme are also possible to further increase student experience in the programme. Some of them are listed below:

➤ **Personalized Curriculum:**

Students have opportunity to select specialization papers as per their wish and in selected cases they can design the syllabus of their special paper in consultation with a professor. This offer allows them to be specialised in a unique area where the systematic study is underway.

➤ **Dual Degree Opportunity:**

Students can register for two degrees simultaneously in the same University as day programme and evening programme. For example, a student registered for MCA can simultaneously register for MBA evening programme.

➤ **Overseas Study Program:**

The Overseas Study Program (OSP) for one week is a capstone subject with an exposure to the global dimensions of business through overseas learning components. The OSP is conducted in an international setting where students who opt for the OSP are required to travel to key international destinations in Asia, Europe or America to establish overseas networks and experience. The OSP at U.K./USA for one week is offered as an optional subject in the fourth Semester of MBA course of Srinivas University, and students are required to bear the costs of travel and visa fees as well as boarding and lodging expenses based on actual.

➤ **Self-directed Global Projects:**

The students have option to carry out their projects in any country based on their contacts and prior experience. Students have option to do their projects in their own firms so that they can contribute the innovations in their firms during study period.

➤ **Student Exchange Programmes:**

One week student exchange programme can be organized every year in which students have gone to another nearby institution and attend a specially planned programme along with the existing students of that school. This will create networking opportunity, studying with new environment and exposure with new faculty members.

➤ **Semester Abroad Program & Dual Degree Programmes:**

The students have option to study their second year abroad based on agreement with selected USA and European universities. The credit of the first year study of this university is honoured by foreign university for second year admission of MS programme. Similarly, the credits of MS programme is accepted by this university so that at the end of two years, such students will get dual degree, one from this university and the other from foreign university.

➤ **Well Planned Academic Calendar:**

The entire course is well planned and organized to complete it within specified time as a crash course with all embedded and promised qualities so that they should become graduate without delay in semesters, projects and announcement of the academic results so that they should get the provisional degree without any delay. This supports the students to get into the job market quickly. The sample course calendar plan of MCA programme is shown in section IV (x).

➤ **LEAD Certificate Programme to Every Student:**

Soon after the induction programme, before starting the regular semester, a one week leadership development programme LEAD (Leadership Effectiveness and Development) is provided to the students to inculcate leadership qualities among them. This includes motivation lectures, case studies, success stories of executives, documentaries, group discussions, in-basket exercises, role plays, business games, sessions on emotional intelligence, flip classes etc.

➤ **IGNITE Certificate Programme to Every Student:**

An intensive certificate programme IGNITE (Innovation & Genius in Technology Exploring) on technology innovation and possible future business opportunities prepares students to explore ideas to start new business using anticipated new technology breakthroughs like nanotechnology, bio-technology, food & drinking water technology, sustainable energy technology and any other area of future business potential.

➤ **Exparanza – IT Students Competition:**

In order to improve the competitive spirit of the students, it is planned to conduct internal competition to test abilities of students while solving the problems in

functional areas of information technology, electronic business, and in leadership challenges.

➤ **Four Projects during the Entire Course:**

Students have to do compulsory projects at the end of each semester. The duration of the projects varies from one month to three months. These projects include industry analysis, empirical research, industry Internship & specialization based projects.

➤ **Project Guide & Industry Mentor to Each Student:**

Along with a faculty guide, each student will be allotted to work under an experienced industry mentor who is capable to guide and mould the student as an innovative thinker, confident leader and an effective decision maker. This will support the student to re-define his career goal.

➤ **Personalized Electives:**

Students have the option to take a maximum of eight credits across courses (Elective courses) of independent study, such as Contemporary Concerns Study or Dissertation. These courses are guided by faculty and provide students an opportunity to personalize their academic work to pursue their specific areas of interest in depth.

➤ **Non-Credit Paper on Job Searching Skills:**

In the second year students are exposed to job searching skills by providing non-credit regular job searching skill development training through placement & training cell. This provide an edge in Identifying and en-cashing better opportunities in national and international placements

➤ **Maths Bridge Course as Optional to Enhance Quantitative Analytical Skills:**

To maintain all students in same level in quantitative analysing ability, the students without maths background will be provided an opportunity to take maths bridge course with various short cut methods in calculus, complex functions and using matrix method in problem solving as optional subject. This will be completed for registered students before the induction programme.

➤ **Opportunity to Journal Publication:**

Students are encouraged and supported to present their research project papers in National /International conferences and publication in International Journals. It is desirable to publish at least one paper when a student awarded degree.

➤ **Weekly IT Experience Enhancement Day:**

Every Saturday is IT Experience Enhancement Day (ITEED) with Team & Group activities. This includes Student Presentations, Student Union Programmes, Industry visits, Exhibitions, New Venture Competition club, Student Forum activities, Student Club activities, Online Projects Club, Games club, Speakers Club, National Service Scheme (NSS) etc. that provide distinct opportunities for learning, networking, and socializing outside the classroom.

➤ **E-LAB:**

Entrepreneurship-Lab is a hands-on course, where students learn by doing. Students will spend a lot of time meeting and talking with their Host Company, potential customers, and industry/technology experts with the emphasis being on identifying attractive target market(s), defining customer value propositions, specifying product/technology requirements and developing market entry strategies. The course sessions that students attend will focus on learning the practical tools and skills required to complete their projects.

➤ **Institutional Teaching/Learning Materials to Every Student:**

Session Plan Booklet & Printed Study Materials with information as per the syllabus, case studies, readings, illustrations, assignment questions, question banks and various excursions are given to every students in all the subjects.

➤ **Innovation in Examination System:**

Innovation in examination system gives emphasis on Continuous Evaluation Choice Based Credit System with mid-semester and end-semester examinations.

➤ **Announcement of Results:**

Examination result will be announced within a week after exam & supplementary exam before going to next semester.

**7. ABCD Analysis of Public & Private Universities Based on MCA Programme:**

Using focus group method, the advantages, benefits, constraints, and disadvantages of public and private universities for MCA programme are analysed and are listed below under organisational, students, faculty, parental and societal issues.

**Advantages:**

**(a) Advantages of Public Universities:**

- ✓ Organization: Financial support from the Government for development and maintenance
- ✓ Students: Equal opportunity for different classes of students in the society
- ✓ Faculty: Less challenge and hence preparation, more job security
- ✓ Publics: Higher education opportunity for their children at low investment.
- ✓ Society: Opportunity for socially deprived people based on reservation & equal opportunity.

**(b) Advantages of Private Universities:**

- ✓ Organization: Financial sustainability through value creation & education innovation
- ✓ Students: Quality education at affordable cost
- ✓ Faculty: Challenges for growth & recognition for performance
- ✓ Publics: Quality education to their children at affordable cost
- ✓ Society: More opportunity for aspirants of higher education

**Benefits:**

**(a) Benefits of Public Universities:**

- ✓ Organization: Catering the local education needs leads to fulfilment of organizational responsibility
- ✓ Students: Higher education at low cost
- ✓ Faculty: Job guarantee and other govt. facilities including pension
- ✓ Publics: Subsidised higher education opportunity for their children
- ✓ Society: Enhancement of higher education rate due to university contribution

**(b) Benefits of Private Universities:**

- ✓ Organization: Name and fame for the public university for development & growth
- ✓ Students: Quality education, personality development, networking, and desired placement
- ✓ Faculty: Growth opportunity through competition and continuous improvement in quality
- ✓ Publics: Access to quality higher education based on need
- ✓ Society: More higher education opportunity for realize the dream of all aspirant which created more business, jobs and hence economic growth of the society.

**Constraints:**

**(a) Constraints of Public Universities:**

- ✓ Organization: Financial constraints due to depends on Government funding, Constraints on innovation in curriculum
- ✓ Students: Less innovated curriculum with delayed updating.
- ✓ Faculty: less opportunity to continuous improvement in curriculum and industry orientation
- ✓ Publics: Lower quality education to their children and hence less comparative opportunity in carrier growth
- ✓ Society: Limited seats available in higher education which fails to fulfil the demand.

**(b) Constraints of Private Universities:**

- ✓ Organization: Various Govt. regulations to speed up organizational development
- ✓ Students: Comparatively high fees
- ✓ Faculty: Low performers cannot sustain
- ✓ Publics: High cost for quality education
- ✓ Society: No substantial constraint to the society.

**Disadvantages:**

**(a) Disadvantages of Public Universities :**

- ✓ Organization: Less opportunity for innovations due to various controls
- ✓ Students: Image on quality and limited number of admissions
- ✓ Faculty: Time based career growth rather than performance oriented promotions
- ✓ Publics: Location and limited opportunity to their children
- ✓ Society: Less contribution to economic development.

**(b) Disadvantages of Private Universities:**

- ✓ Organization: Huge investment for establishment
- ✓ Students: Higher initial investment
- ✓ Faculty: No job security for poor performers
- ✓ Publics: No considerable disadvantage for publics by private universities
- ✓ Society: No considerable disadvantage for the society by private universities

Detailed ABCD analysis of MBA programme of Private universities under various issues like organizational issues, student issues, faculty issues, parental issues & societal issues and identifying factors affecting under the four constructs - advantages benefits, constraints, & disadvantages and finding constituent critical elements are under progress and will be published shortly.

**8. Conclusion:**

In this paper, the public and private universities are compared based on their ability to provide quality and innovative post graduate programme in computer applications (MCA) education in terms of quality, latest innovative curriculum, specialisations, programme duration, foreign exposure, industry orientation, networking, placement service, total credits for the programme, course structure, and examination system. Further possible innovations in the programme for enhancing students networking and exposure are also discussed. Finally, the advantages benefits, constraints and disadvantages of public and private universities are identified and are listed under organisational, students, faculty, parental and societal issues using focus group method.

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