Proceedings of the second meeting of the Board of Post Graduate Studies (BPGS) of the Department of Information Technology on 6th October, 2015
Venue - HOD's Chamber, Dept of IT, TU

Members Present:

1. Prof. Sangram Sinha, Dean, Faculty of Science
2. Prof. Diganta Goswami, CSE, IITG -
3. Prof. Shikar Kr. Sarma, IT, Gauhati Univ -
4. Shibendu Debbarma, Asst. Prof & HOD-i/c, Dept of IT - 6/10/15
5. Abhishek Das, Asst. Professor, Dept of IT - 6/10/15

1(a) MCA Syllabus and Structure has been finalized. The Committee resolved that the detail structure and Syllabus of MCA may be submitted to TU authority for approval.

(b) BCA Syllabus and Structure has been finalized. The Committee resolved that the detail structure and Syllabus of BCA may be submitted to TU authority for approval.

2. List of examiners for end semester examination (odd Semester) 2015 has been discussed and accordingly finalized by the Committee.

3. The Committee recommend to modify the eligibility criteria of MCA admission for BCA pass out students, to be admitted in 3rd Semester

(04)

of MCA as lateral entry.

06/10/15

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(S.K.Sarma)

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Course Structure for Master of Computer Application (MCA)

(Effective for batches admitted from 2015)

Note.: C –Core, E- Elective, P – Practical, L- Lectures, T- Tutorial ;

MCA SEMESTER 1

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0701C	Mathematical Foundations of Computer Applications	3-0-0	3	3	100
INFT0702C	Programming in C	3-1-0	4	4	100
INFT0703C	Computer Organization & Assembly Language Programming	3-1-0	4	4	100
INFT0704P	Programming in C Laboratory	0-0-3	3	6	100
INFT0705P	Assembly Language Programming Laboratory	0-0-3	3	6	100
Total Credits	*3 Theory, 2 Laboratories*	*9-2-6*	*17*	*23*	*500*

MCA SEMESTER 2

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0801C	Data ~~& File~~ Structures and Algorithms	3-0-0	3	3	100
INFT0802C	Operating System	3-0-0	3	3	100
INFT0803F	Computer Skill III (Java Programming)	4-0-0	4	4	100
INFT0804P	Data & File Structures Laboratory	0-0-2	2	4	100
INFT0805P	Unix Laboratory	0-0-2	2	4	100
INFT0806P	Computer Skill III (Java Programming) Lab	0-0-2	2	4	100
INFT08**E	Elective I (Non Departmental Elective)	3-0-0	3	3	100
Total Credits	*3 Theory, 3 Laboratories*	*13-0-6*	*19*	*25*	*700*

MCA SEMESTER 3

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0901C	Database Management Systems	3-0-0	3	3	100
INFT0902C	Object Oriented Programming (C++/Java)	3-1-0	4	4	100
INFT0903C	Data Communication & Computer Network	3-1-0	4	4	100
INFT0904P	Object Oriented Programming Laboratory (C++/Java)	0-0-2	2	4	100
INFT0905P	Computer Network Laboratory	0-0-2	2	4	100
INFT0906P	Database Management Systems Laboratory	0-0-2	2	4	100
INFT09**E	Elective II	3-0-0	3	3	100
Total Credits	*4 Theory, 3 Laboratories*	*12-3-8*	*20*	*26*	*700*

MCA SEMSTER 4

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT1001C	Software Engineering	3-1-0	4	4	100
INFT1002C	Web Technology	3-1-0	4	4	100
INFT1004P	Web Technology Laboratory	0-0-2	2	4	100
INFT1005P	Application Development Lab	0-0-2	2	4	100
INFT10**E	Elective III	3-0-0	3	3	100
INFT10**E	Elective IV	3-0-0	3	3	100
INFT1006P	Lab for Elective	0-0-1	1	2	100
Total Credits	*4 Theory,3 Laboratories*	12-4-8	19	24	700

MCA SEMESTER 5

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT1101C	Information System Security	3-1-0	4	4	100
INFT11**E	Elective V	3-0-0	3	3	100
INFT11**E	Elective VI	3-0-0	3	3	100
INFT11**E	Common Elective VII	2-1-0	3	3	100
INFT1101P	Seminar & Technical Writing	0-0-2	2	4	100
INFT1102P	Project Phase I	0-0-3	3	6	100
Total Credits	*4Theory Courses, 2 Laboratories*	11-4-4	18	23	600

MCA SEMESTER 6

Course Code:	Course Title	L-T-P/S	Credits	Marks
INFT1201P	Project and Viva Voce	0-0-18	10	500
Total Credits	*1 Project and Viva Voce*	0-0-18	10	500

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ELECTIVE SUBJECTS

Course Code	Course Title	Credits	Semester No
SEMESTER 2	**Elective I (Non Departmental)**		
INFT0801E	Accounting and Financial Management	3	2
INFT0802E	Business Management	3	2
INFT0803E	Entrepreneurship Development	3	2
INFT0804E	Organization Behavior	3	2
SEMESTER 3	**Elective II**		
INFT0901E	Digital logic and Basic Electronics	3	3
INFT0902E	Internet Technology	3	3
INFT0903E	Discrete Mathematical Structures	3	3
INFT0904E	Numerical Methods	3	3
SEMESTER 4	**Elective III**		
INFT1001E	Adhoc & Sensor Networks	3	4
INFT1002E	Distributed Computing	3	4
INFT1003E	Formal Language and automata Theory	3	4
INFT1004E	Soft Computing	3	4
SEMESTER 4	**Elective IV**		
INFT1005E	Image Processing	3	4
INFT1006E	Data Mining and Data Warehousing	3	4
INFT1007E	Network Synthesis	3	4
INFT1008E	Advanced Networking	3	4
INFT1009E	Software Project Management	3	4
SEMESTER 5	**Elective V**		
INFT1106E	TCP/IP Network Programming	3	5
INFT1107E	Information Retrieval and Web Mining	3	5
INFT1108E	Advances in Database	3	5
INFT1109E	Artificial Intelligence	3	5
SEMESTER 5	**Elective VI**		
INFT1110E	Multimedia Technology	3	5
INFT1111E	Pattern Recognition	3	5
INFT1112E	Object Oriented Analysis and Design	3	5
INFT1113E	Cloud Computing	3	5
INFT1114E	Digital Signal Processing	3	5
SEMESTER 5	**Elective VII (Common Elective)**		
INFT1115E	Soft Skill for MCA	3	5
INFT1116E	Yoga	3	5
INFT1117E	Music	3	5
INFT1118E	Fine Arts	3	5
INFT1119E	Communicative English	3	5
INFT11110E	NSS	3	5

[Soft Skill: *Oral and professional communication in English, Written communication, Presentation* skill, Personality development, Group discussion, Interview Preparation]

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Course Structure for Bachelor of Computer Application (BCA)

(Effective for batches admitted from 2015)

Note.: C –Core, E- Elective, P – Practical, L- Lectures, T- Tutorial ;

BCA SEMESTER 1

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0101C	Fundamentals of IT - I	3-1-0	4	4	100
INFT0102C	Environmental Studies	3-0-0	3	3	100
INFT0103C	Mathematics	3-1-0	4	4	100
INFT0104P	English and Functional Communication	3-1-0	4	4	100
INFT0105P	Soft Skill & Communication Laboratory	0-0-2	2	4	100
INFT0106P	Computer Fundamental Lab	0-0-2	2	4	100
Total Credits	***3 Theory, 2 Laboratories***	***12-1-4***	***19***	***23***	***600***

BCA SEMESTER 2

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0201C	Fundamentals of IT- II	3-0-0	3	3	100
INFT0202C	ICT Workshop	0-0-2	2	4	100
INFT0203C	Basic Electronics	3-1-0	4	4	100
INFT0204C	C Programming	3-1-0	4	4	100
INFT0205P	Electronics Laboratory	0-0-2	2	4	100
INFT0206P	C Programming Laboratory	0-0-2	2	4	100
Total Credits	***4 Theory, 2 Laboratories***	***9-2-6***	***17***	***23***	***600***

BCA SEMESTER 3

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0301C	Computer Organization	3-1-0	4	4	100
INFT0302C	Data Structures & Algorithm	3-1-0	4	4	100
INFT0303C	Operating System	3-1-0	4	4	100
INFT0304P	Data Structure & Algorithm Laboratory	0-0-3	3	6	100
INFT0305P	Introduction to Unix/ Linux Laboratory	0-0-2	2	4	100
Total Credits	***3 Theory, 2 Laboratories***	***9-3-5***	***17***	***22***	***500***

BCA SEMSTER 4

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0401C	Fundamentals of Software Engineering	3-0-0	3	3	100
INFT0402C	Database Management Systems	3-1-0	4	4	100
INFT0403P	Elective I Laboratory	0-0-2	2	4	100
INFT0404P	Database Management Systems Lab	0-0-2	2	4	100
INFT04**E	Elective I	3-1-0	4	4	100
INFT04**E	Elective II	3-1-0	4	4	100
Total Credits	***4 Theory,2 Laboratories***	**12-3-4**	**19**	**24**	**600**

BCA SEMESTER 5

Course Code:	Course Title	L-T-P	Credits	Hours	Mark
INFT0501C	Introduction to OOPS	3-0-0	3	3	100
INFT0502C	Data Communication and Computer Networks	3-0-0	3	3	100
INFT0503C	Web Technology	3-0-0	3	3	100
INFT0504P	Computer Network Laboratory	0-0-2	2	4	100
INFT0505P	Web Technology Laboratory	0-0-2	2	4	100
INFT0506P	OOP Lab	0-0-2	2	4	100
INFT05**E	Elective III (Common Elective)	3-1-0	4	4	100
Total Credits	***4Theory, 3 Laboratories***	**11-2-6**	**19**	**25**	**700**

BCA SEMESTER 6

Course Code:	Course Title	L-T-P/S	Credits	Hours	Marks
INFT0601P	Project and Viva Voce	0-0-16	16	--	400
INFT0602P	Seminar	0-0-2	2	4	100
INFT06**E	Elective IV	4-0-0	4	4	100
Total Credits	***1 Project, 1 Theory, 1 Seminar***	**4-0-18**	**22**	**8**	**600**

Total Credit= 113, Core Credit= 97 (Theory=52, Practical=45), Elective= 16 (Departmental Elective= 12, Non Departmeatal Elective= 04)

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ELECTIVE SUBJECTS

Course Code	Course Title	Credits	Semester No
SEMESTER 4	Elective I		
INFT0401E	Computer Architecture	4	4
INFT0402E	Microprocessor	4	4
SEMESTER 4	Elective II		
INFT0403E	Computer Graphics	4	4
INFT0404E	Data Mining and Data Warehousing	4	4
INFT0405E	Discrete Mathematics	4	4
INFT0406E	Image Processing	4	4
INFT0407E	Sensor Networks	4	4
INFT0408E	Software Project Management	4	4
SEMESTER 5	Elective III (Common Elective)		
INFT0501E	Yoga	4	5
INFT0502E	Music	4	5
INFT0503E	Fine Arts	4	5
INFT0504E	Communicative English	4	5
INFT0505E	NSS	4	5
SEMESTER 6	Elective IV		
INFT0601E	Advanced Website Designing	4	6
INFT0602E	Advanced DBMS	4	6
INFT0603E	Computer Vision	4	6
INFT0604E	Cryptography	4	6
INFT0605E	Formal Language and Automata Theory	4	6
INFT0606E	Mobile Computing	4	6
INFT0607E	Pattern Recognition	4	6

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Department of Information Technology
सूचान प्रौद्योगिकी विभाग
त्रिपुरा विश्वविद्यालय/TRIPURA UNIVERSITY
(केन्द्रीय विश्वविद्यालय/A Central University)
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No. F. BPGS/IT/TU/2017/06 **Dated: 14th September 2018**

The Proceedings of the 5th meeting of the Board of Post Graduate Studies (BPGS) of the Department of Information Technology on 14th September 2018.

Venue: Office of Dean Faculty of Science, Tripura University.

Members Present:

1. Prof. S. Banik, Dean Faculty of Science, Tripura University
2. Prof. A. Mukherjee, Professor, Dept. of Mathematics, Tripura University (Invited Member)
3. Dr. S. Majumder, Head, Department of Information Technology, Tripura University.
4. Dr. A. Majumder, Assistant Professor, Department of CSE, Tripura University.
5. Dr. B. B. Bhowmik, Assistant Professor, Department of ECE, Tripura University.
6. Mr. J. Pal, Assistant Professor, Department of Information Technology, Tripura University.

At the outset, Dr. S. Majumder, Head Department of Information Technology, extended deep gratitude to the Dean Faculty of Science, Prof. S. Banik, for allowing the 5th BPGS meeting of the department at his office followed by warm welcome to the aforesaid members present. Prof. P. Dutta External member has gone through the syllabi and Dr. D. Ghosal has given his consent to go ahead with the meeting in his absence.

The last 4th BPGS of the department held on 20th February 2017 under the then Coordinator, Dept of IT, Mr. S. Debbarma is confirmed. The agenda wise discussion initiated is as under:

Agenda 1: Proposal of PG and PhD Syllabi with MOOC courses of the Dept. of Information Technology

Resolution

- The proposed Syllabus for RET Examination of the Department of Information Technology has been deferred for the next BPGS meeting.
- The PhD Course Work course syllabus and course structure for PhD in Information Technology was approved by the committee with an option to take the 3 departmental papers via Govt. approved MOOCs under NPTEL or SWAYAM.
- The PG course syllabus and course structure for M.Tech in Information Technology was approved by the committee with an option to take up to 20% credits via Govt. approved MOOCs under NPTEL or SWAYAM as per UGC and AICTE notification.

Agenda 2: Correction of subject code discrepancy with Examination Cell for the existing CBCS syllabi.

Resolution

- Correction of subject code discrepancy with Examination Cell for the existing CBCS syllabi was approved as per the new course structure and correction of prefix codes from "INFT" to "MCA"

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Agenda 3: Any PhD Related matters of two previously registered scholars under Prof. Anjan Mukherjee, Dept. of Mathematics, TU.

Prof. A. Mukherjee, informed the committee that two scholars are registered under his supervision and an internal and an external RAC member are to be included for them.

Resolution:

- The RAC Members to be included the two PhD Scholars (and) of the department registered under the guidance of Prof. A. Mukherjee, Dept. of Mathematics, TU are as under:

Name of Scholar	External Member	Internal Member
Mr. T. Deb	Prof. Subhasis Choudhuri, Dept. of EE, IIT Bombay, Bombay, sc@ee.iitb.ac.in, +91-9820605354	Dr. S. Majumder, Associate Prof. and Head, Dept of IT, Tripura University
Mr. S. K. Das	Prof. Saurabh Pal, Dept. of Applied Physics, University of Calcutta, Kolkata West Bengal spal76@gmail.com, +91-9073417274	Dr. S. Majumder, Associate Prof. and Head, Dept of IT, Tripura University

Agenda 4: Miscellaneous.

A. Formation of DRC (Departmental Research Committee) of the department of Information Technology

Resolution

The DRC of Department of Information Technology formed with the following composition:

a. Dr. Swanirbhar Majumder (HOD, IT) as Chairperson
b. Prof. Anjan Mukherjee, Dept of Mathematics, Member.
c. Dr. Mrinal Kanti Bhowmik, Dept. of CSE, Member.

B. Approval of all previous proposals for paper setters, moderators and evaluators of MCA, BCA and PG Compulsory Foundation courses

Resolution:

Reported and Approved.

Then the meeting ended with a vote of thanks to the Chair

14/9/18
(Mr. J. Pal)
Asst. Prof., Dept. of IT, TU

14.09.18
(Dr. A. Majumder)
Asst. Prof., Dept. of CSE, TU

14/9/18
(Dr. B. B. Bhowmik)
Asst. Prof., Dept. of ECE, TU

14/09/18
(Dr. S. Majumder)
Head, Dept. of IT, TU

14/9/18
(Prof. A. Mukherjee)
Professor, Dept of Mathematics

14.9.2018
(Prof. S. Banik)
Dean Faculty of Science

PhD and PG

Syllabus

Department of Information Technology

Tripura University

(A Central University)

Suryamaninagar, Tripura, India -799022

Approved
14-9-2018
14/9/18
14.9.18
14.09.18

The basic eligibility and selection procedure of PhD and PG programmes under the department of Information Technology along with syllabi are listed here:

1.1. Minimum Eligibility for admission to obtain PhD in Information Technology

Applicant must be an Indian national and must have passed any of the following:

M. Tech/M.E. degree in Information Technology/ Computer Science & Engineering/ Computer Engineering/ Electronics and Communication Engineering / Software Engineering or equivalent with first class and not less than 55% aggregate marks (of all the years) or equivalent CGPA of 6.5 (in case of SC/ST and Physically Challenged (PC) candidates 50% aggregate marks or equivalent CGPA of 6.0 is the eligibility requirement), with/without a valid GATE score. GATE qualified candidates will get preference.

1.2. Minimum Eligibility for Admission in PG course in Information Technology

Applicant must be an Indian national and must have passed any of the following:

a) B. Tech/B.E. degree in Information Technology/ Computer Science & Engineering/ Computer Engineering/ Electronics and Communication Engineering / Software Engineering or equivalent.
b) MCA or its equivalent or
c) M.Sc. in Computer Science/ Information Technology/ Electronics

with first class and not less than 60% aggregate marks (of all the years) or equivalent CGPA of 6.5 (in case of SC/ST and Physically Challenged (PC) candidates 55% aggregate marks or equivalent CGPA of 6.0 is the eligibility requirement), with/without a valid GATE score. GATE qualified candidates will get preference.

1.3. Selection Procedure for admission for PhD in Information Technology

Selection for admission into Ph.D (IT) Programme will be strictly on the basis of merit. However, policy of reservation (and/or quota if any) will be applicable as per central Govt rule. Moreover, there should be available slots under the faculty supervisors of the department as per UGC norms. The Rules and Regulations are in connivance with the UGC (Minimum Standards and Procedure for Awards of M.Phil/Ph.D Degree) Regulations, which are modified and as clarified time to time.

The University shall allow a candidate to get admission in the Ph.D. Program when he /she qualifies in RET (Research Eligibility Test) conducted by the Tripura University. The RET shall be conducted through a Written Test as per Syllabi of the department listed in Section 1.5 followed by Viva-Voce Examinations.

A candidate seeking Admission in the Ph.D. Program in the Dept of IT must have a eligibility as per Section 1.1.

The basic eligibility criteria for appearing in RET shall be the successful completion of the earlier Post-Graduate Program (fulfilling the norms stated in sub clause 3.IV & 3.V of the lateset Ph. D Rules & Regulations of the University) or a professional degree declared equivalent by the corresponding statutory regulatory body recognized by UGC or AICTE.

1.4. Selection Procedure for PG course in Information Technology

Selection for admission into M. Tech (IT) Programme will be strictly on the basis of merit. However, policy of reservation (and/or quota if any) will be applicable as per central Govt rule. The detailed selection criterion for admission is as follows:

a) First preference will be given to candidates who have passed any of the above specified examinations in Section 1.2 AND have valid GATE score in Information Technology or Computer Science & Engineering. The selection will be made on the basis of valid GATE score.

b) Second preference will be given to candidates who have passed any of the above specified examinations in Section 1.2. The selection will be merit basis. The department may also conduct a written test centrally like TUET (Tripura University Eligibility Test) or individually in the department for the aspiring candidates.

1.5. Syllabus for Research Eligibility Test (RET) for admission for obtaining PhD in Information Technology

deferred

As per current UGC norms RET has to be of 100 marks of which 50% weightage is to be given to research methodology and rest 50% to Subject specific knowledge. The RET question paper of the Department of Information Technology shall be within the following guidelines:

Part I: Research Methodology 50%

Research Preparation and Planning: Objectives, goals. Critical thinking. Topic selection and justification. Development of a research proposal. Research Resources: Sources of information. Literature, Citation indices – Impact factor, Ethical and Moral Issues in Research, Plagiarism, IPR– Copy right laws – Patent rights. Academic Writing and Presentation: Organization of proposals, Basic knowledge of funding agencies, Research report writing, Communication skills, Publication to Reputed journals, Thesis and Research report writing. Presentation Elements, Oral Communication skills and Oral defense. Data Collection, Analysis and Inference: Basic Statistics. Sample size determination & sampling Techniques- Tests and their applications in research studies. Correlation and Regression Analysis-Time series Analysis-Forecasting methods. Mathematical Modelling: Basic concepts– static and dynamic model – Model for prediction and its limitations. System simulation – validation and use of optimization techniques.

Part II: Information Technology 50%

Basic Mathematical Foundations of Engineering Mathematics and Discrete Mathematics: Graphs, Combinatorics, Linear Algebra, Calculus and Probability. Digital Logic Boolean algebra. Combinational and sequential circuits. Digital Design. Assembly Language programming. Computer Organization and Architecture Machine instructions and addressing modes, memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode). Programming and Data Structures Programming in C, Algorithms Searching, sorting, hashing, Algorithm design techniques. Theory of Computation Regular expressions and finite automata. Compiler Design Lexical analysis, Operating System Processes, File systems. Databases ER-model. Relational model: SQL. Integrity constraints, normal forms. Database Management Systems, File organization, Computer Networks Concept of layering. LAN technologies (Ethernet), Basics of Wi-Fi. Network security. Basics of Cloud computing, Soft Computing and IoT.

1.6. Course work Syllabus for students admitted for obtaining PhD in Information Technology

The students shortlisted and selected via section 1.4 need to undergo mandatory course work which shall be in accordance to PhD norms prescribed by the university and UGC. The minimum Credits required to pass the course-work is 16 credits. The candidates have to obtain the minimum credits via:

- Mandatory Research methodology course under Dean Faculty of Science: **4 Credits**
- A minimum of three (03) papers of 4 credits each from the list of course work subjects listed by the department (as suggested by supervisor) from list in Section 1.8 : 3x4= **12 Credits**

1.7. Mandatory Research methodology course under Dean Faculty of Science

The whole paper is divided into four units as follows:

- Unit-1: Basic Computer Applications:
  Basic computer knowledge, Features and applications related to presentation of text in suitable format and saving the data for future applications. Use of word processing, Practical knowledge of MS Word to type the script, insert tables, figures and graphs, plotting of graphs in excel, Preparation of power point presentations based on the topic of research. Insertion of figures, graphs, charts in presentation. Use of spreadsheet and database software, Preparation of scientific posters for presentations, Internet and its application: Email, WWW, Web browsing, acquiring technical skills, drawing inferences from data, Cloud computing.
- Unit-2: Quantitative methods, Statistics and application of Computer in statistics:
  Measures of Central tendency and Dispersion. Probability distribution- Normal, Binomial and Poisson distribution. Parametric and Non-parametric statistics. Confidence interval, Errors. Quantitative Techniques: Levels of significance, Regression and Correlation coefficient. Statistical analysis and fitting of data; Chi-Square Test, Association of Attributes t-Test Anova, Standard deviation, Co-efficient of variations. Open source software for quantitative and statistical analysis.
- Unit-3: Research Ethics and IPR:
  Environmental impacts - Ethical issues - ethical committees - Commercialization – Copy right – royalty - Intellectual property rights and patent law – Trade Related aspects of Intellectual Property Rights – Reproduction of published material – Plagiarism - Citation and acknowledgement - Reproducibility and accountability.
- Unit-4: Documentation and scientific writing:
  Results and Conclusions, Preparation of manuscript for Publication of Research paper, Presenting a paper in scientific seminar, Thesis writing. Structure and Components of Research Report, Types of Report: research papers, thesis, Research proposal, Research Project Reports, Pictures and Graphs, citation styles, writing a review of paper, Bibliography.

1.8. List of 4 credit Electives for PhD Course work (select any three)

Course Code	Course Title	L-T-P	Credits	Availability as MOOC
PIT0001E	Adhoc and Sensor Networks	4-0-0	4	Yes
PIT0002E	Advanced Graph Theory	4-0-0	4	Yes
PIT0003E	Advanced Microprocessor	4-0-0	4	
PIT0004E	Artificial Intelligence	4-0-0	4	Yes
PIT0005E	Bioinformatics	4-0-0	4	Yes
PIT0006E	Cloud Computing	4-0-0	4	Yes
PIT0007E	Compiler Design	4-0-0	4	Yes
PIT0008E	Computational Geometry	4-0-0	4	Yes
PIT0009E	Computational Systems Biology	4-0-0	4	Yes
PIT0010E	Computer Architecture	4-0-0	4	Yes
PIT0011E	Cryptography and Network Security	4-0-0	4	Yes
PIT0012E	Data Mining	4-0-0	4	Yes
PIT0013E	Data Science	4-0-0	4	Yes
PIT0014E	Deep Learning	4-0-0	4	Yes
PIT0015E	Digital Signal Processing	4-0-0	4	Yes
PIT0016E	Distributed System	4-0-0	4	Yes
PIT0017E	Embedded Systems	4-0-0	4	Yes
PIT0018E	Image Processing	4-0-0	4	Yes
PIT0019E	Information Theory and Coding Techniques	4-0-0	4	Yes
PIT0020E	Internet of Things	4-0-0	4	Yes
PIT0021E	Knowledge Representation and Reasoning	4-0-0	4	Yes
PIT0022E	Machine Learning	4-0-0	4	Yes
PIT0023E	Medical Electronics	4-0-0	4	
PIT0024E	Mobile Computing	4-0-0	4	Yes
PIT0025E	Modern Digital Communication Techniques	4-0-0	4	Yes
PIT0026E	Modern Digital System Design	4-0-0	4	Yes
PIT0027E	Multimedia Processing	4-0-0	4	Yes
PIT0028E	Natural Language Processing	4-0-0	4	Yes
PIT0029E	Pattern Recognition	4-0-0	4	Yes
PIT0030E	Social Network	4-0-0	4	Yes
PIT0031E	Soft Computing	4-0-0	4	Yes
PIT0032E	Software Engineering	4-0-0	4	Yes
PIT0033E	Computer Networks and Internet Protocol	4-0-0	4	Yes
PIT0034E	Theory of Computation	4-0-0	4	Yes
PIT0035E	Data Structures and Algorithm	4-0-0	4	Yes

approved

N.B. : If available in the form of MOOC course under the UGC/AICTE SWAYAM or NPTEL Initiative, these courses can be taken online as well, subject to University approving a proper Credit Transfer via MoU and Controller Examination doing the mapping of MOOC 75-25 (Exam-Internal) to University format of 70-30. Else the department can appoint a mentor for the courses for doing the same.

Curriculum & Syllabus

M.Tech in Information Technology

Note.: C –Core, E- Elective, P – Practical, L- Lectures, T- Tutorial ;

M.Tech (IT) SEMESTER 1

Course Code	Course Title	L-T-P	Credits	Mark	MOOC
IT0901C	Probability and Random Process	3-0-0	3	100	Yes
IT0902C	Computer Networks and Internet Protocol	3-0-0	3	100	
IT0903C	Research Methodology and IPR	2-0-0	2	100	
IT0904C	Laboratory I (Based on Cores)	0-0-4	2	100	
IT0905C	Laboratory II (Based on Electives)	0-0-4	2	100	
IT00XXE	Elective I	3-0-0	3	100	
IT00XXE	Elective II	3-0-0	3	100	
Total Credits	*5 Theory, 2 Laboratories*	*14-0-8*	***18***	*700*	

M.Tech (IT) SEMESTER 2

Course Code:	Course Title	L-T-P	Credits	Mark	MOOC
CSK-III	Computer Skill- III (As per CBCS)	3-1-0	4	100	Yes
IT1001C	Data Structures and Algorithm	3-0-0	3	100	Yes
IT1002C	Laboratory III (Based on Cores)	0-0-4	2	100	
IT1003C	Laboratory IV (Based on Electives)	0-0-4	2	100	
IT1004C	Mini Project with Seminar	0-0-4	2	100	
IT00XXE	Elective III	3-0-0	3	100	
IT00XXE	Elective IV	3-0-0	3	100	
Total Credits	*4 Theory, 3 Laboratories*	*12-1-12*	***19***	*700*	

M.Tech (IT) SEMESTER 3

Course Code:	Course Title	L-T-P	Credits	Mark	MOOC
IT1101C	Thesis Report Interim I	0-0-10	5	100	
IT1102C	Thesis Seminar Interim I (Presentation and Viva)	0-0-10	5	100	
IT00XXE	Elective V	3-0-0	3	100	
	Open Elective (Other Department)	3-1-0	4	100	
Total Credits	*2 Theory, 2 Laboratories*	***6-1-20***	***17***	*500*	

M.Tech (IT) SEMSTER 4

Course Code:	Course Title	L-T-P	Credits	Mark	MOOC
IT1201C	Thesis Report Interim II	0-0-16	8	400	
IT1202C	Thesis Seminar Interim II (Presentation and Viva)	0-0-16	8	400	
Total Credits	*2 Laboratories*	0-0-32	**16**	800	

Total Credit= 70

Foundation=4; Core=47 (Theory: 11, Practical: 36), Elective= 19 (Departmental: 15, Other Department:4)

Open Elective (Non-Departmental) (04 Credits)

* As offered by other departments of Tripura University in respective semester under CBCS.

Approved 14.9.2018 14/9/18 14.9.18

ELECTIVE SUBJECTS

Course Code	Course Title	L-T-P	Credits	MOOC
IT0001E	Adhoc and Sensor Networks	3-0-0	3	Yes
IT0002E	Advanced Graph Theory	3-0-0	3	Yes
IT0003E	Advanced Microprocessor	3-0-0	3	
IT004E	Artificial Intelligence	3-0-0	3	Yes
IT0005E	Bioinformatics	3-0-0	3	Yes
IT0006E	Cloud Computing	3-0-0	3	Yes
IT0007E	Compiler Design	3-0-0	3	Yes
IT0008E	Computational Geometry	3-0-0	3	Yes
IT0009E	Computational Systems Biology	3-0-0	3	Yes
IT0010E	Computer Architecture	3-0-0	3	Yes
IT0011E	Cryptography and Network Security	3-0-0	3	Yes
IT0012E	Data Mining	3-0-0	3	Yes
IT0013E	Data Science	3-0-0	3	Yes
IT0014E	Deep Learning	3-0-0	3	Yes
IT0015E	Digital Signal Processing	3-0-0	3	Yes
IT0016E	Distributed System	3-0-0	3	Yes
IT0017E	Embedded Systems	3-0-0	3	Yes
IT0018E	Image Processing	3-0-0	3	Yes
IT0019E	Information Theory and Coding Techniques	3-0-0	3	Yes
IT0020E	Internet of Things	3-0-0	3	Yes
IT0021E	Knowledge Representation and Reasoning	3-0-0	3	Yes
IT0022E	Machine Learning	3-0-0	3	Yes
IT0023E	Medical Electronics	3-0-0	3	
IT0024E	Mobile Computing	3-0-0	3	Yes
IT0025E	Modern Digital Communication Techniques	3-0-0	3	Yes
IT0026E	Modern Digital System Design	3-0-0	3	
IT0027E	Multimedia processing	3-0-0	3	Yes
IT0028E	Natural Language Processing	3-0-0	3	Yes
IT0029E	Pattern Recognition	3-0-0	3	Yes
IT0030E	Social Network	3-0-0	3	Yes
IT0031E	Soft Computing	3-0-0	3	Yes
IT0032E	Software Engineering	3-0-0	3	Yes
IT0033E	Switching Circuits and Logic Design	3-0-0	3	Yes
IT0034E	Theory of Computation	3-0-0	3	Yes
IT0035E	Web Technology	3-0-0	3	

Features

- Advanced study through Core subjects, flexible and diverse program specific electives.
- Open Electives to widen knowledge
- Foundation compulsory course
- Engagement of Industry in developing innovations and problem solutions.
- Collaborative learning
- Ensured competency development of learner.

 # Students going for Industrial Project/ Thesis will complete these courses through MOOCs.

*Students to be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

Program Outcomes of M.Tech (IT) program:

At the end of the program a student is expected to have:

1. An understanding of the theoretical foundations and the limits of computing.
2. An ability to adapt existing models, techniques, algorithms, data structures, etc. for efficiently solving problems.
3. An ability to design, develop and evaluate new computer-based systems for novel applications which meet the desired needs of industry and society.
4. Understanding and ability to use advanced computing techniques and tools.
5. An ability to undertake original research at the cutting edge of computer science & its related areas.
6. An ability to function effectively individually or as a part of a team to accomplish a stated goal.
7. An understanding of professional and ethical responsibility.
8. An ability to communicate effectively with a wide range of audience.
9. An ability to learn independently and engage in lifelong learning.
10. An understanding of the impact of IT related solutions in an economic, social and environment context.

Course Structure for Master of Computer Application (MCA)

(Effective for batches admitted from Session 2019-20)

Note.: C –Core, E- Elective, P – Practical, L- Lectures, T- Tutorial ;

MCA SEMESTER 1

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0701C	Mathematical Foundations of Computer Applications	3-0-0	3	3	100	
MCA0702C	Programming in C	3-1-0	4	4	100	Yes
MCA0703C	Computer Organization & Assembly Language Programming	3-1-0	4	4	100	
MCA0704C	Programming in C Laboratory	0-0-3	3	6	100	
MCA0705C	Assembly Language Programming Laboratory	0-0-3	3	6	100	
Total Credits	*3 Theory, 2 Laboratories*	*9-2-6*	*17*	*23*	*500*	

MCA SEMESTER 2

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
CSK-III	Computer Skill-III	4-0-0	4	4	100	
CSK-IIIL	Computer Skill-III Lab	0-0-2	2	4	100	
MCA0801C	Data Structures& Algorithm	3-0-0	3	3	100	Yes
MCA0802C	Operating System	3-0-0	3	3	100	Yes
MCA0803C	Data Structures& Algorithm Laboratory	0-0-2	2	4	100	
MCA0804C	Unix Laboratory	0-0-2	2	4	100	
	Open Elective (Non Departmental)	2-0-0	2	2	100	
Total Credits	*3 Theory, 3 Laboratories*	*12-0-6*	*18*	*24*	*700*	

MCA SEMESTER 3

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0901C	Database Management Systems	3-1-0	4	4	100	Yes
MCA0902C	Object Oriented Programming	3-1-0	4	4	100	Yes
MCA0903C	Data Communication & Computer Network	3-1-0	4	4	100	
MCA0904C	Database Management Systems Laboratory	0-0-2	2	4	100	
MCA0905C	Object Oriented Programming Laboratory	0-0-2	2	4	100	
MCA0906C	Computer Network Laboratory	0-0-2	2	4	100	
MCA00XXE	Elective I	3-0-0	3	3	100	
Total Credits	*4 Theory, 3 Laboratories*	*12-3-6*	*21*	*27*	*700*	

MCA SEMSTER 4

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA1001C	Software Engineering	3-1-0	4	4	100	
MCA1002C	Web Technology	3-1-0	4	4	100	
MCA1003C	Web Technology Laboratory	0-0-2	2	4	100	
MCA1004C	Application Development Lab	0-0-2	2	4	100	
MCA00XXE	Elective II	3-0-0	3	3	100	
MCA00XXE	Elective III	3-0-0	3	3	100	
Total Credits	*4 Theory,3 Laboratories*	12-4-8	**18**	**22**	**600**	

MCA SEMESTER 5

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA1101C	Information System Security	3-1-0	4	4	100	
MCA1102C	Seminar & Technical Writing	0-0-2	2	4	100	N/A
MCA1103C	Project Phase I	0-0-3	3	6	100	N/A
MCA00XXE	Elective IV	3-0-0	3	3	100	
MCA00XXE	Elective V	3-0-0	3	3	100	
	Open Elective (Non Departmental)	4-0-0	4	4	100	
Total Credits	*4Theory Courses, 2 Laboratories*	12-2-5	**19**	**24**	**700**	

MCA SEMESTER 6

Course Code:	Course Title	L-T-P/S	Credits	Marks	MOOC
MCA1201C	Project and Viva Voce	0-0-18	10	500	N/A
	1 Project and Viva Voce	0-0-18	**10**	**500**	

Total Credit= 103, Core Credit= 76 (Theory=41, Practical=35), Foundation=6, Elective= 21 (Departmental Elective= 15, Non Departmental Elective= 06)

ELECTIVE SUBJECTS (DEPARTMENTAL)

Course Code	Course Title	L-T-P	Credits	MOOC
MCA0001E	**Adhoc & Sensor Networks**	3-0-0	3	Yes
MCA0002E	Advanced Networking	3-0-0	3	
MCA0003E	Advances in Database	3-0-0	3	
MCA0004E	Artificial Intelligence	3-0-0	3	Yes
MCA0005E	Cloud Computing	3-0-0	3	
MCA0006E	Cryptography and Network Security	3-0-0	3	
MCA0007E	Data Mining	3-0-0	3	Yes
MCA0008E	Data Science	3-0-0	3	
MCA0009E	Deep Learning	3-0-0	3	Yes
MCA0010E	Digital logic and Basic Electronics	3-0-0	3	Yes
MCA0011E	Digital Signal Processing	3-0-0	3	Yes
MCA0012E	Discrete Mathematical Structures	3-0-0	3	Yes
MCA0013E	Distributed Computing	3-0-0	3	
MCA0014E	Formal Language and Automata Theory	3-0-0	3	Yes
MCA0015E	Image Processing	3-0-0	3	Yes
MCA0016E	Information Retrieval and Web Mining	3-0-0	3	
MCA0017E	Internet of Things	3-0-0	3	Yes
MCA0018E	Internet Technology	3-0-0	3	
MCA0019E	Machine Learning	3-0-0	3	Yes
MCA0020E	Multimedia Technology	3-0-0	3	
MCA0021E	Natural Language Processing	3-0-0	3	Yes
MCA0022E	Network Synthesis	3-0-0	3	
MCA0023E	Numerical Methods	3-0-0	3	Yes
MCA0024E	Object Oriented Analysis and Design	3-0-0	3	
MCA0025E	Pattern Recognition	3-0-0	3	
MCA0026E	Social Networks	3-0-0	3	Yes
MCA0027E	Soft Computing	3-0-0	3	
MCA0028E	Software Project Management	3-0-0	3	
MCA0029E	Speech and Natural Language Processing	3-0-0	3	
MCA0030E	TCP/IP Network Programming	3-0-0	3	

OPEN ELECTIVE (NON-DEPARTMENTAL) SUBJECTS (6 Credits)

* As offered by other departments of Tripura University in respective semester under CBCS.

14-9-2018

14.9.18

14/9/18

14.09.18

Department of Information Technology
सूचना प्रौद्योगिकी विभाग
त्रिपुरा विश्वविद्यालय/TRIPURA UNIVERSITY
(केन्द्रीय विश्वविद्यालय/A Central University)
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Dr. Swanirbhar Majumder
Head, Dept. of Information Technology
Tripura University, Suryamaninagar.

To
The Deputy Registrar (Academic)
Tripura University, Suryamaninagar
(Through the Dean Faculty of Science)

1.10.2018

Dated: 1st October'2018

Subject: **DRC formed for the department of Information Technology in the 5th BPGS dated 14th September' 2108.**

Sir,

I would like to inform that the following DRC (Departmental Research Committee) has been formed with two external members for the department of Information Technology in the 5th BPGS on the 14th September' 2108 vide F. No: BPGS/IT/TU/2017/06 under Agenda No. 4 A:

1. Dr. Swanirbhar Majumder (HOD, IT) as Chairperson
2. Prof. Anjan Mukherjee, Dept of Mathematics, Member.
3. Dr. Mrinal Kanti Bhowmik, Dept. of CSE, Member.

The minutes of the 5th BPGS of the department has been attached for your kind reference. Kindly do the needful in this regard for the PhD admissions in the Department for the academic session 2018-19.

Thanking you.

Yours Sincerely

01/10/18

(Swanirbhar Majumder)

Enclosures:

1. Minutes of the 5th BPGS of the department of Information Technology

Copy to:

1. P.S. to Honorable Vice-Chancellor, Tripura University for information.
2. Registrar, Tripura University for information.
3. Finance Officer, Tripura University for information.
4. Controller Examination, Tripura University for information.
5. Coordinator, Admission Cell, Tripura University for information.

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No. F. BPGS/IT/TU/2020/04

Dated: 5th August'2020

The Proceedings of the 10th meeting of the Board of Post Graduate Studies (BPGS) of the Department of Information Technology on 5th August'2020 at 1:00 PM.

Venue: Dept. of Information Technology, Tripura University.

Members Present:

1. Dr. S. Majumder, Head, Department of IT, Tripura University -Chairman
2. Dr. A. Roy, Asst. Professor, Dept. of IT, Tripura University -Member
3. Mr. J. Pal, Asst. Professor, Dept. of IT, Tripura University -Member
4. Dr. A. Majumder, Asst. Professor, Dept. of CSE, Tripura University -Member
5. Dr. B. B. Bhowmik, Asst. Professor, Dept. of ECE, Tripura University. -Member
6. Mr. S. Nandi, Asst. Professor, Dept. of IT, Tripura University. -Invited Member
7. Dr. S. Saha, Asst. Professor, Dept. of IT, Tripura University. -Invited Member

The agenda wise discussion initiated is as under:

Agenda 1: To confirm the proceedings of the previous BPGS meeting held on the 26th June' 2020.

Resolution:

- Proceedings of previous 9th BPGS meeting held on the 26th June'2020 are hereby confirmed.

Agenda 2: Restructuring 3 years AICTE affiliated MCA program offered by the department to 2 years as notified by AICTE on 3rd July 2020 vide 545th meeting of UGC.

Resolution

- Date wise process of restructuring 3 years AICTE affiliated MCA program offered by the department to 2 years as notified by AICTE on 3rd July 2020 vide 545th meeting of UGC.

Sl	Date	Remarks
1	19/12/2019	3 years MCA to be restricted to 2 years decided as per AICTE related agenda of Minutes of 545th meeting of UGC
2	14/05/2020	Minutes of 545th meeting of UGC confirmed in Minutes of 546th meeting of UGC
3	03/07/2020	AICTE circulates letter F. No. AICTE/AB/MCA/2020-21 for re-structuring 3 years AICTE affiliated MCA program to 2 years from the academic session 2020-21 as per APH
4	06/07/2020	Permission for restructuring approved by Dean, Science and Honorable Vice Chancellor, i.e Chairman BFS, Science and Chairman, AC with formation of syllabus committee
5	13/07/2020	Departmental meeting for restructuring MCA program and making draft syllabus with Dr. M. K. Debbarma, Associate Professor and Head Dept of CSE, NIT, Agartala made.
6	20/07/2020	New 2 year course structure and syllabus approved by syllabus committee.

05/08/2020 05/08/2020 05/08/2020 05/08/2020 5/8/2020

The 2-year MCA Syllabus was formed in the Departmental Committee meeting dated 13th July'2020 keeping into account the following:

1. 70% Core Subjects and 30% Elective and other non-departmental subjects as per CBCS Norms of UGC well with the 72 credits limit for the 2-year PG course
2. 4 credits mandatory Computer Skill for 2 years PG course and 4 credits non-departmental course for 2 years PG course as per CBCS Norms of UGC
3. Allowing up to 20% credit transfer via Govt. approved MOOCS courses under SWAYAM as per CBCS Norms of UGC

The syllabus passed by the departmental committee along with external expert was placed in the meeting. The members suggested that there should be option for students to take credit transfer from government approved MOOCs under SWAYAM as per directions of MHRD and Tripura University norms.

It has been resolved that the syllabus of 2 years MCA program of the department is unanimously passed by the committee.

Then the meeting ended with a vote of thanks to the Chair.

05.08.2020
(Dr. A. Majumder)
Asst. Prof.,
Dept. of CSE, TU
Member

(Dr. B. B. Bhowmik)
Asst. Prof.,
Dept. of ECE, TU
Member

05/08/2020
(Dr. A. Roy)
Asst. Prof.,
Dept. of IT, TU
Member

05/08/2020
(Mr. J. Pal)
Asst. Prof.,
Dept. of IT, TU
Member

05/08/2020
(Dr. S. Majumder)
Head of the Dept, Convener and ex-officio Chairperson

05/08/2020
(Mr. S. Nandi)
Asst. Prof., Dept. of IT, TU
(Invited Member)

5/8/2020
(Dr. S. Saha)
Asst. Prof., Dept. of IT, TU
(Invited Member)

Enclosures:

1. Syllabus approved by the Syllabus committee of the department
2. Relevant letters and document in this regard.

Phone : 011-26131577 - 78, 80
011-29581000
Website : www.aicte-india.org

सत्यमेव जयते

अखिल भारतीय तकनीकी शिक्षा परिषद्
(भारत सरकार का एक सांविधिक निकाय)
(मानव संसाधन विकास मंत्रालय, भारत सरकार)
नेल्सन मंडेला मार्ग, वसंत कुंज, नई दिल्ली-110070

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION
(A Statutory Body of the Govt. of India)
(Ministry of Human Resource Development, Govt. of India)
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070

F. No. AICTE/AB/MCA/2020-21

03.07.2020

To

All AICTE Approved institutes / Universities

Subject:- Change in the duration of MCA Program from 3 Years to 2 Years w.e.f. 2020-21-reg.

Sir / Madam

As you may be aware that the issue regarding change in the duration of MCA program from 3 years to 2 years has been engaging the attention of UGC / AICTE for quite some time in the past.

It is informed that the above issue was placed before 545th Meeting of University Grant Commission held on 19.12.2019 and the same has been approved. Hence the MCA course shall be of 2 Years duration from 2020-21.

It is also brought to your notice that the above change in the duration of MCA program from 03 Years to 02 Years has also been incorporated in the AICTE APH 2020-21 and the eligibility qualification is as below:-

"Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree. OR Passed B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (with additional bridge Courses as per the norms of the concerned University). Obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination

In view of the above, necessary modification in the course duration of MCA program may please be made in conformity with the UGC decision and provisions contained in AICTE APH for A. Y. 2020-21. A line of confirmation may please be sent to the Council in this regard immediately.

3.7.20

Member Secretary, AICTE

Department of Information Technology
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5296
06.07.20

Dr. Swanirbhar Majumder
Associate Professor & Head
Dept. of Information Technology
Tripura University, Suryamaninagar

V.C
may be permitted.
08/07/2020

Approved.
9/7/2020

Dated: 06/07/2020

To
The Dean, Faculty of Sciences,
Chairman BFS, Faculty of Sciences
Tripura University,
Suryamaninagar, Tripura

Subject: - Permission to re-structure 3 years AICTE MCA programme to 2 years from the session 2020-21 vide AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020 as per minutes of 545th meeting of UGC dated 19/12/2019 confirmed in the 546th meeting of UGC dated 14/05/2020.

Respected Sir,

With due regards I would like to inform that AICTE has changed the duration of all AICTE affiliated 3 years MCA (Master in Computer Applications) programme to 2 years as per letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020. This has been incorporated as per the issue placed in the 545th meeting of UGC (University Grant's Commission) dated 19/12/2019 and has been duly approved and later confirmed in the 546th meeting of UGC dated 14/05/2020.

Hence the AICTE affiliated MCA course shall be of 2 years duration from 2020-21. It was also brought to notice that the above change in the duration of MCA program from 03 years to 02 Years has also been incorporated in the AICTE APH 2020-21 and the eligibility qualification is as below:-

"Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree. OR Passed B.Sc./ B.Com./ B.A. with Mathematics at 10+2 Level or at Graduation Level (with additional bridge Courses as per the norms of the concerned University). Obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination"

In view of the above, necessary modification in the course duration of MCA program is to be made in conformity with the UGC decision and provisions contained in AICTE APH for A.Y. 2020-21. A line of confirmation is therefore to be sent to the council in this regard immediately.

Kindly permit the department to make the necessary changes in the course-structure to 2 years for AY-2020-21 immediately as otherwise students applying for MCA in the University shall prefer to go for admission in other institutions to save 1 year of academics if not implemented in the current year.

The necessary restructuring the MCA course to 2 years if needed can be done by the department on war-footing from the department side and put up in the next BPGS. Kindly guide the undersigned in this regard.

Thanking You.

Yours Sincerely,
06/07/2020
(Swanirbhar Majumder)

Enclosure:

1. AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020
2. AICTE Approval Process Handbook (APH) 20-21 section 5.9

Department of Information Technology
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Dr. Swanirbhar Majumder
Associate Professor & Head
Dept. of Information Technology
Tripura University, Suryamaninagar

त्रिपुरा विश्वविद्यालय / Tripura University
सूर्यमणिनगर / Suryamaninagar
त्रिपुरा / Tripura University
JUL 2020
प्राप्ति / Received
क्र. / Sl. No.: 609
Time:
हस्ता / Initial

Dated: 07/07/2020

To
The Registrar,
Tripura University,
Suryamaninagar, Tripura

Subject: - Permission to re-structure 3 years AICTE MCA programme to 2 years from the session 2020-21 vide AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020 as per minutes of 545th meeting of UGC dated 19/12/2019 confirmed in the 546th meeting of UGC dated 14/05/2020.

Respected Sir,

With due regards I would like to inform that AICTE has changed the duration of all AICTE affiliated 3 years MCA (Master in Computer Applications) programmes to 2 years as per letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020. This has been incorporated as per the issue placed in the 545th meeting of UGC (University Grant's Commission) dated 19/12/2019 and has been duly approved and later confirmed in the 546th meeting of UGC dated 14/05/2020.

Hence the AICTE affiliated MCA course shall be of 2 years duration from 2020-21. It was also brought to notice that the above change in the duration of MCA program from 03 years to 02 Years has also been incorporated in the AICTE APH 2020-21 and the eligibility qualification is as below:-

"Passed BCA/ Bachelor Degree in Computer Science Engineering or equivalent Degree. OR Passed B.Sc./ B.Com./ B.A. with Mathematics at l0+2 Level or at Graduation Level (with additional bridge Courses as per the norms of the concerned University). Obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination"

In view of the above, necessary modification in the course duration of MCA program is to be made in conformity with the UGC decision and provisions contained in AICTE APH for A.Y. 2020-21. A line of confirmation is therefore to be sent to the council in this regard immediately.

Kindly permit the department to make the necessary changes in the course-structure to 2 years for AY-2020-21 immediately as otherwise students applying for MCA in the University shall prefer to go for admission in other institutions to save 1 year of academics if not implemented in the current year.

The necessary restructuring the MCA course to 2 years if needed can be done by the department on war-footing from the department side and put up in the next BPGS. Kindly guide the undersigned in this regard.

Thanking You.

Yours Sincerely,

07/07/2020

(Swanirbhar Majumder)

Enclosure:

1. AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020

389

त्रिपुरा विश्वविद्यालय
TRIPURA UNIVERSITY

NOTE

Reference No.....

Date 07/07/2020.

Letter dated 06.07.2020 of Head, Dept. of Information Technology, Tripura University regarding the request for Permission to re- structure 3 years AICTE MCA programme to 2 year from the session 2020-21 vide AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July 2020, (vide-F-'A') as per minutes of 545th meeting of UGC dated 19/12/2012. As implement same in Tripura University, may kindly be seen and decision may kindly be taken accordingly, if so desire.

Submitted. Tanmoy Bhowmik. 07/07/2020.

Dy. Reg(i/c) Sir. The proposal may be approved by the authority for implementation from this session onwards.

7/7/2020

Registrar(i/c)

A Committee may be constituted to examine.

8/7/20

V.C

A proposal may be submitted from IT department in the light syllabus committee with an external member.

10/7/2020

Registrar

13/7/20

HOD, IT

Department of Information Technology
सूचना प्रौद्योगिकी विभाग
त्रिपुरा विश्वविद्यालय/TRIPURA UNIVERSITY
(केन्द्रीय विश्वविद्यालय/A Central University)
सूर्यमणिनगर, अगरतला, त्रिपुरा(प.) / Suryamaninagar, Agartala, Tripura (W.), पिन/PIN – 799022, भारत/INDIA.

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वेबसाइट/Web: www.tripurauniv.ac.in

F.TU/IT/Meeting/2020/03 *Dated:13-07-2020*

Proceedings of the meeting of the Department of Information Technology held on 13th July, 2020, 11 AM in the Head Room, Department of Information Technology, Tripura University.

The following faculty members were present in the meeting:

1.	Dr. Swanirbhar Majumder	Associate Prof. and Head Dept of IT, TU
2.	Dr. Alak Roy	Assistant Professor, Dept of IT, TU
3.	Mr. Jayanta Pal	Assistant Professor, Dept of IT, TU
4.	Mr. Swarup Nandi	Assistant Professor, Dept of IT, TU
5.	Dr. Sumanta Saha	Assistant Professor, Dept of IT, TU

Head of the Dept of IT, Tripura University welcomed all faculty members present in the meeting.

Agenda 1: ***To confirm the proceedings of the previous departmental meeting held on held on 16th January, 2020.***

Resolution: Proceedings of Previous meeting held on *16th January, 2020*, is confirmed.

Agenda 2: ***To discuss the AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020 for re-structure 3 years AICTE affiliated MCA programme to 2 years from the academic session 2020-21***

Resolution:

- It was discussed that as per minutes of 545th meeting of UGC dated 19/12/2019 confirmed in the 546th meeting of UGC dated 14/05/2020 AICTE has decided to re-structure 3 years AICTE affiliated MCA programme to 2 years from the academic session 2020-21 vide letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020.
- Accordingly, permissions have been sought from the competent authority vide letters issued on 6th July'2020 to the Registrar, Tripura University (Head of the Institute), Honorable Vice Chancellor, Tripura University (Chairman Academic Council) and the Dean Faculty of Science (Chairman Board of Faculty of Studies, Sciences). Letters are attached in. **Annexure I/II/III.**

Agenda 3: ***Regarding restructuring of the MCA programme to 2 years from the academic session 2020-21.***

Resolution:

- It was resolved that the 2 years MCA program course structure shall be keeping in terms of the CBCS scheme of credit distribution as listed in **Annexure IV** along with the faculty associated for the syllabi of the same.

Agenda 4: ***Regarding syllabus of the 2 years MCA programme.***

Resolution:

- The syllabus for the 2 years MCA program as per course structure with 70% core subjects and 30% elective and other department subjects as per CBCS norms.is attached in **Annexure-V.**

The meeting ended with vote of thanks to the Chair.

13/7/2020 (Sumanta Saha) | Swandi 13/07/2020 (Swarup Nandi) | 13/7/2020 (Jayanta Pal) | Alak Roy (Alak Roy) | 13/07/2020 (Swanirbhar Majumder)

Copy to:

1. PS to honourable Vice Chancellor, Tripura University for information
2. Registrar, Tripura University for information
3. Chairman BPGS, Tripura University for necessary approval.

Department of Information Technology
सूचना प्रौद्योगिकी विभाग
त्रिपुरा विश्वविद्यालय/TRIPURA UNIVERSITY
(केन्द्रीय विश्वविद्यालय/A Central University)
सूर्यमणिनगर, अगरतला, त्रिपुरा(प.) / Suryamaninagar, Agartala, Tripura (W.), पिन/PIN – 799022, भारत/INDIA.

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5296
06.07.20

Dr. Swanirbhar Majumder
Associate Professor & Head
Dept. of Information Technology
Tripura University, Suryamaninagar

V.C
may be permitted
08/07/2020

Dated: 06/07/2020

Approved
9/7/2020

To
The Dean, Faculty of Sciences,
Chairman BFS, Faculty of Sciences
Tripura University,
Suryamaninagar, Tripura

Subject: - Permission to re-structure 3 years AICTE MCA programme to 2 years from the session 2020-21 vide AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020 as per minutes of 545th meeting of UGC dated 19/12/2019 confirmed in the 546th meeting of UGC dated 14/05/2020.

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Yours Sincerely,

06/07/2020

(Swanirbhar Majumder)

Enclosure:

1. AICTE letter F. No. AICTE/AB/MCA/2020-21 dated 3rd July'2020
2. AICTE Approval Process Handbook (APH) 20-21 section 5.9

2-year MCA (AICTE affiliated)

Syllabus

As per UGC CBCS for AY-2020-21

Department of Information Technology

Tripura University

(A Central University)

Suryamaninagar, Tripura, India -799022

05/08/2020

अध्यक्ष / Head
सूचना प्रौद्योगिकी विभाग
Department of Information Technology
त्रिपुरा विश्वविद्यालय
Tripura University

05.08.2020 05/08/2020 05/08/2020 5/8/2020.

05/08/2020

DEPARTMENT OF INFORMATION TECHNOLOGY/ सूचना प्रौद्योगिकी विभाग

त्रिपुरा विश्वविद्यालय / TRIPURA UNIVERSITY

Course Structure for Master of Computer Application (MCA)-2 years

(Effective for batches admitted from Session 2020-21)

MCA SEMESTER I

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0101C	Mathematical Foundations of Computer Applications	3-0-0	3	3	100	Yes*
MCA0102C	Programming in C	3-0-0	3	3	100	Yes*
MCA0103C	Computer Organization & Assembly Language Programming	3-0-0	3	3	100	Yes*
CSK III	Computer Skill-III	4-0-0	4	4	100	Yes
MCA0104C	Programming Laboratory	0-0-2	2	4	100	N/A
MCA0105C	Assembly Language Laboratory	0-0-2	2	4	100	N/A
Total Credits	*4 Theory, 2 Laboratories*	*13-0-4*	***17***	***21***	***600***	

MCA SEMESTER II

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0201C	Software Engineering	3-0-0	3	3	100	Yes*
MCA0202C	Data Structures & Algorithm	3-0-0	3	3	100	Yes*
MCA0203C	Operating System	3-0-0	3	3	100	Yes*
----------	Open Elective **(Non-Departmental)**	4-0-0	4	4	100	----
MCA0204C	Data Structures& Algorithm Laboratory	0-0-2	2	4	100	N/A
MCA0205C	Software Development Laboratory	0-0-2	2	4	100	N/A
MCA0206C	Seminar & Technical Writing	0-0-2	2	4	100	N/A
Total Credits	*4 Theory, 3 Laboratories*	*13-0-6*	***19***	***25***	***700***	

MCA SEMESTER III

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0301C	Database Management Systems	3-0-0	3	3	100	Yes*
MCA0302C	Data Communication & Computer Network	3-0-0	3	3	100	Yes*
MCA00XXE	Elective I	3-0-0	3	3	100	Yes*
MCA00XXE	Elective II	3-0-0	3	3	100	Yes*
MCA0303C	Database Management Systems Laboratory	0-0-2	2	4	100	N/A
MCA0304C	Computer Network Laboratory	0-0-2	2	4	100	N/A
MCA0305C	Project Phase I	0-0-2	2	4	100	N/A
Total Credits	***4 Theory, 3 Laboratories***	***12-0-7***	***18***	***24***	***700***	

MCA SEMSTER IV

Course Code	Course Title	L-T-P	Credits	Hours	Mark	MOOC
MCA0401C	Project and Viva Voce	0-0-16	08	16	400	N/A
MCA00XXE	Elective III	3-0-0	3	3	100	Yes*
MCA00XXE	Elective IV	3-0-0	3	3	100	Yes*
Total Credits	*2 Theory,1 Laboratories*	6-0-20	**14**	**22**	**600**	

Total Credit= 68, Core Credit= 48 (Theory=24, Practical=24), Foundation=4, Elective= 16 (Departmental Elective= 12, Non-Departmental Elective= 04)

NB: If Semester-IV Project done outside department (in Industry) the Elective III and IV may be completed via taking extra electives in Semester III or Credit Transfer from MOOCs as per TU norms

Yes*: If available online in the particular semester but as per TU credit transfer norms

20/07/2020

(Dr. S. Majumder)
Head, Dept of IT

(Dr. A. Roy)
(Member)

(Mr. J. Pal)
(Member)

Sandi 20/07/2020

(Mr. S. Nandi)
(Member)

(Dr. S. Saha)
(Member)

(Dr. M. K. Debbarma)
(External Member)

ELECTIVE SUBJECTS (DEPARTMENTAL) (12 Credits) to be completed in 2nd year (Semester III/IV)

Course Code	Course Title	L-T-P	Credits	MOOC
MCA0001E	Adhoc & Sensor Networks	3-0-0	3	Yes*
MCA0002E	Advanced Networking	3-0-0	3	Yes*
MCA0003E	Advances in Database	3-0-0	3	Yes*
MCA0004E	Artificial Intelligence	3-0-0	3	Yes*
MCA0005E	Cloud Computing	3-0-0	3	Yes*
MCA0006E	Cryptography and Network Security	3-0-0	3	Yes*
MCA0007E	Data Mining	3-0-0	3	Yes*
MCA0008E	Data Science	3-0-0	3	Yes*
MCA0009E	Deep Learning	3-0-0	3	Yes*
MCA0010E	Digital logic and Basic Electronics	3-0-0	3	Yes*
MCA0011E	Digital Signal Processing	3-0-0	3	Yes*
MCA0012E	Discrete Mathematical Structures	3-0-0	3	Yes*
MCA0013E	Distributed Computing	3-0-0	3	Yes*
MCA0014E	Formal Language and Automata Theory	3-0-0	3	Yes*
MCA0015E	Image Processing	3-0-0	3	Yes*
MCA0016E	Information Retrieval and Web Mining	3-0-0	3	Yes*
MCA0017E	Internet of Things	3-0-0	3	Yes*
MCA0018E	Internet Technology	3-0-0	3	Yes*
MCA0019E	Machine Learning	3-0-0	3	Yes*
MCA0020E	Multimedia Technology	3-0-0	3	Yes*
MCA0021E	Natural Language Processing	3-0-0	3	Yes*
MCA0022E	Network Synthesis	3-0-0	3	Yes*
MCA0023E	Numerical Methods	3-0-0	3	Yes*
MCA0024E	Object Oriented Analysis and Design	3-0-0	3	Yes*
MCA0025E	Pattern Recognition	3-0-0	3	Yes*
MCA0026E	Social Networks	3-0-0	3	Yes*
MCA0027E	Soft Computing	3-0-0	3	Yes*
MCA0028E	Software Project Management	3-0-0	3	Yes*
MCA0029E	Speech and Natural Language Processing	3-0-0	3	Yes*
MCA0030E	TCP/IP Network Programming	3-0-0	3	Yes*
MCA0031E	Web Technology	3-0-0	3	Yes*
MCA0032E	Information System Security	3-0-0	3	Yes*
MCA0033E	Advanced SoC Design	3-0-0	3	Yes*
MCA0034E	Advanced Computer Architecture	3-0-0	3	Yes*
MCA0035E	Embedded Linux	3-0-0	3	Yes*
MCA0036E	Graphics and Mobile Gaming	3-0-0	3	Yes*
MCA0037E	Introduction to Robotics Systems	3-0-0	3	Yes*
MCA0038E	Embedded Systems Design	3-0-0	3	Yes*
MCA0039E	Object Oriented Programming in C++	3-0-0	3	Yes*
MCA0040E	Programming in Python	3-0-0	3	Yes*

- **Elective Subjects (Departmental): 12 Credits, Open Elective (Non-Departmental) Subjects: 4 Credits**
- **Yes*: If available online in the particular semester but as per TU credit transfer norms**

(Dr. S. Majumder) Head, Dept of IT

(Dr. A. Roy) (Member)

(Mr. J. Rai) (Member)

(Mr. S. Nandi) (Member)

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