# Indira Gandhi National Open University
## School of Computer & Information Sciences (SOCIS)

## Details about MCA (New) Programme Delivery and Evaluation related matters.

The MCA (New) programme delivery and evaluation related matters are given below:

1. **Software Requirements**
2. **Theory and Practical Sessions**
3. **Compulsory practical attendance**
4. **Evaluation Scheme**
5. **Academic Counsellors' Mapping**

## 1          Software Requirements:
The following are the software requirements for the MCA(New) Programme:

### SOFTWARE REQUIREMENTS FOR MCA (NEW) PROGRAMME

| Course Code | | Proposed Software |
|---|---|---|
| **Semester I** | | |
| MCSL-216 | DAA and Web Design Lab | **For DAA**<br><br>(1) Compilers of C/C++ for Windows or Linux.<br><br>**For Web Design**<br><br>(2) HTML (latest verison), CSS (latest version), Java Script, Notepad++ |
| MCSL-217 | Software Engineering Lab | (1) Software Cost Estimation : EZEstimate (2) Project Planning : StarTeam (Borland or Micro Focus) /  Microsoft Project (3) Analysis: Gatherspace   / IBM Rational Requisite Pro / Caliber RM (4) Design:  IBM Rational Software Modeler / Together (Borland or Micro Focus) (5) Testing: IBM Rational Functional Tester / Silk Test (Borland or Micro Focus) (6) Web Software Engineering : Microsoft Office Project Web access<br><br>or IBM Rational Software Architect Designer (extensible UML, BPMN, sketching tools, and |

| | | other graphical tools and notations for visualization, comprehension, modeling, design, development, and deployment of complex software solutions)<br><br>Note: Any other software whose functionality is equal or more than the above prescribed software can also be used. Please ensure that terms and conditions governing the software license are strictly adhered to |
|---|---|---|
| **Semester II** | | |
| MCSL-222 | OOAD and Web Technologies Lab | **For Web Technologies( J2EE Programming) :** NetBeans IDE for Java EE Developers/ Eclipse IDE for Java EE Developers<br>**For OOAD(UML Diagrams) :** AgroUML/StarUML/BOUML/Dia/Visual Paradigm/Edraw-Max/Smart Draw/MS-Visio/Rational UML/ IBM Rational Software Architect Designer |
| MCSL-223 | Computer Networks and Data Mining Lab | **For Computer Networks :**<br><br>Compilers of C/C++ for Windows or Linux; NS2 or any other open source network simulator.<br><br>**For Data Mining :**<br><br>RapidMiner/R/Python/IBM SPSS Models/WEKA/ Apache Mahout/Knime/ or any other popular open source tool for R programming/ Excel Miner |
| **Semester III** | | |
| MCSL-228 | AI and Machine Learning Lab | Anaconda (open source software for Python)/ R Studio/ Jupyter Notebooks/ Google Colabs |
| MCSL-229 | Cloud and Data Science Lab | **Cloud Computing :** KVM in Linux based systems, Oracle VirtualBox in windows based systems, CloudSigma, Open stack, Cloudsim<br><br>**For Data Science :**<br><br>R-Studio or any other open source tool for R |

| | | | Programming | |
|---|---|---|---|---|
| | | | | |

**Note : Any other software whose functionality is equal or more than the above prescribed software can also be used. Please ensure that terms and conditions governing the software license are strictly adhered to.**

**The LSC should use latest versions of the software as far as possible.**

All Study Centres / Programme Study Centres should possess the **licensed software**. *Beta* versions of the software should not be entertained. Enough licenses as per number of machines for a 1:1 ratio. The Regional Directors / Asst Regional Directors should visit and cross-check all the study centres whether they possess the licensed software before they give permission as study centres / PSC's for MCA (New) programme. Most of the recommended software is open source software

**2        Theory and Practical Sessions**

   (i)    For a 2-credit theory course there will be 3 counselling sessions of 2 hours duration each.
   (ii)   For a 4-credit theory course there will be 6 counselling sessions of 2 hours duration each.
   (iii)  There will be 20 practical sessions for every 2 credit lab course, each session being of 3 hours duration.

## COUNSELLING SESSIONS FOR MCA (NEW) PROGRAMME

## MCA 1st Semester Schedule

| Course | Theory/Practical | Credits | No. of Theory Counselling Sessions | Hrs | No. of Practical Counselling Sessions | Hrs |
|---|---|---|---|---|---|---|
| MCS-211 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-212 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-213 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-214 | Theory Sessions | 2 | 3 | 6 | - | - |
| MCS-215 | Theory Sessions | 2 | 3 | 6 | - | - |
| MCSL-216 | Practical Sessions | 2 | - | - | 20 | 60 |
| MCSL-217 | Practical Sessions | 2 | - | - | 20 | 60 |

## MCA 2nd Semester Schedule

| Course | Theory/Practical | Credits | No. of Theory Counselling Sessions | Hrs | No. of Practical Counselling Sessions | Hrs |
|---|---|---|---|---|---|---|
| MCS-218 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-219 | Theory Sessions | 4 | 6 | 12 | - | - |

| Course | Theory/Practical | Credits | No. of Theory Counselling Sessions | Hrs | No. of Practical Counselling Sessions | Hrs |
|--------|------------------|---------|-----------------------------------|-----|--------------------------------------|-----|
| MCS-220 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-221 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCSL-222 | Practical Sessions | 2 | - | - | 20 | 60 |
| MCSL-223 | Practical Sessions | 2 | - | - | 20 | 60 |

## MCA 3<sup>rd</sup> Semester Schedule

| Course | Theory/Practical | Credits | No. of Theory Counselling Sessions | Hrs | No. of Practical Counselling Sessions | Hrs |
|--------|------------------|---------|-----------------------------------|-----|--------------------------------------|-----|
| MCS-224 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-225 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-226 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-227 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCSL-228 | Practical Sessions | 2 | - | - | 20 | 60 |
| MCSL-229 | Practical Sessions | 2 | - | - | 20 | 60 |

## MCA 4<sup>th</sup> Semester Schedule

| Course | Theory/Practical | Credits | No. of Theory Counselling Sessions | Hrs | No. of Practical Counselling Sessions | Hrs |
|--------|------------------|---------|-----------------------------------|-----|--------------------------------------|-----|
| MCS-230 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCS-231 | Theory Sessions | 4 | 6 | 12 | - | - |
| MCSP-232 | Project | 12 | 4 | 8 | - | - |

* **Theory counselling sessions is of 2 Hr duration.**
* **Practical counsessling sessions is of 3 Hr duration.**

| Semester | No. of Sessions | | No. of Hours | |
|----------|-----------------|-----------|--------------|-----------|
| | Theory | Practical | Theory | Practical |
| I | 24 | 40 | 48 | 120 |
| II | 24 | 40 | 48 | 120 |
| III | 24 | 40 | 48 | 120 |
| IV | 12 + 4 sessions for discussions on Project | - | 24 + 8 | - |
| TOTAL | 84 | 120 | 176 | 360 |

**Total Computer time = Practical time = 120 Sessions = 360 Hours**

(iv)  **Counsellor-student ratio**: Theory counseling – 60 students to one counsellor
Practical counseling – 30 students to one counselor

(v)  Student to machine ratio should be 2:1

## 3        Compulsory Practical Attendance

The following issues regarding the attendance for the practical sessions are to be considered:

(i)  75% attendance is compulsory in the practical sessions for each lab course.  This is a pre-requisite for taking the term-end practical examination in that course.

(ii)  A student who fails to fulfill the 75% attendance requirements for a lab course should be allowed to re-register for the same **course**. The pro-rata fee for a lab  course  will be changed as per the University norms.

(iii)  Students are required to prepare a separate lab record for each lab course. This lab record will be duly signed by the counselor of practical session after each session.

(iv)  Student's attendance should be recorded course wise at the Learner Support Center (LSCs)

## 4     Evaluation Scheme

The evaluation for each course covers two aspects:

(a)     Continuous evaluation     (b) Term-end examination
The following evaluation scheme for MCA (New) programme is proposed:

| Type of Course | Continuous Evaluation   ( only one assignment) | Term End Examination |
|---|---|---|
| Theory | 30% | 70% |
| Practical / Lab | 30%* | 70%** |

*Each assignment will be worth 100 marks and weightage will be 30%. Theory assignment will consists of 80% marks for assignment questions and 20% marks for viva-voce. A student must appear for viva-voce in order to pass the assignment. The lab course assignment will consist of 40% marks for lab records, 40% marks for assignment questions and 20% marks for viva-voce.*

* A student cannot appear for the term-end practical examination of a lab course unless s/he has 75% attendance in the lab / practical course.

**Criteria for successfully completing a course**:

For the MCA (New) programme, it is proposed that the students should achieve **a minimum of 40% in each component** (both in the assignment as well as in the TEE) and overall 40% in each course to successfully complete the course. This criteria is same as that of present MCA. For project course a

student must obtain 40% marks in Viva and 40% marks in project report evaluation to pass the project course.

**Duration of TEE:**

The School proposes the term-end examination duration as follows:
Term-end theory examination for 4-credit courses:     3 hrs, 100 marks.
Term-end  theory examination for 2-credit courses:     2 hrs, 50 marks.
Term-end practical examination for 2-credit courses:     2 hrs, 50 marks.
The Evaluation scheme is given below:
**EVALUATION SCHEME FOR MCA (NEW) PROGRAMME**

| Seme-ster | Course Code | Course Title | Credits | Continuous Evaluation | | Term End Examination | | |
| | | | | Assignment (Weightage – 30%) | | Theory OR Practicals* ( for Lab courses only) (Weightage – 70%) | | |
| | | | | Max Marks | Min. Marks | Duration | Max. Marks | Min. Marks |
| I | MCS-211 | Design and Analysis of Algorithms | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-212 | Discrete Mathematics | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-213 | Softwrae Engineering | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-214 | Professional Skills and Ethics | 2 | 100 | 40 | 2 | 50 | 20 |
| | MCS-215 | Sycurity and Cyber Laws | 2 | 100 | 40 | 2 | 50 | 20 |
| | MCSL-216 | DAA and Web Design Lab | 2 | 100 | 40 | 2 | 50 | 20 |
| | MCSL-217 | Software Engineering Lab | 2 | 100 | 40 | 2 | 50 | 20 |
| II | MCS-218 | Data Communication and Computer Networks | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-219 | Object Oriented Analysis and Design | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-220 | Web Technologies | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-221 | Data Warehousing and Data Mining | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCSL-222 | OOAD and Web Technologies Lab | 2 | 100 | 40 | 2 | 50 | 20 |
| | MCSL-223 | Computer Networks and Data Mining Lab | 2 | 100 | 40 | 3 | 50 | 20 |
| III | MCS-224 | Design and Analysis of Algorithms | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-225 | Accountancy and Financial Management | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-226 | Data Science and Big Data | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-227 | Cloud Computing and IoT | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCSL-228 | AI and Machine Learning Lab | 2 | 100 | 40 | 2 | 50 | 20 |
| | MCSL-229 | Cloud and Data Science Lab | 2 | 100 | 40 | 2 | 50 | 20 |
| IV | MCS-230 | Digital Image Processing and Computer Vision | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCS-231 | Mobile Computing | 4 | 100 | 40 | 3 | 100 | 40 |
| | MCSP-232 | Project ** | 12 | Report – 150 (Min. 60) and Viva 50 (Min. 20)   (Total = 200 marks) | | | | |

\* **Practical examination will be conducted for the lab courses only. The letter 'L' in the course code represents the lab course. Pass in each and every part in the practical course of Term End Practical Examination is compulsory in order to get it declared successful in the respective course.**

\*\* **The Project consist of 2 components namely project report evaluation and viva. Viva-voce is compulsory and forms part of evaluation. A student in order to be declared successful in the project must secure 40% marks in each component of project evaluation i.e. (i) Project Evaluation and (ii) Viva-voce.**

Details of term-end practical examination for lab courses are given below:

### Evaluation of Term-end Practical exam for Lab Courses

**(Practical questions –80 % and Viva-voce – 20 %)**

| Course Code | Duration of term-end practical examination (Each section gets equal time) | Term-end practical examination and viva-voce | |
|---|---|---|---|
| | | Marks of Section-1 | Marks of Section-2 |
| MCSL-216 (2 credits) | 2 hours | 20 (P) +5(V) = 25 marks | 20(P) + 5(V) = 25 marks |
| MCSL-217 (2 credits) | 2 hours | 40(P) + 10 (V) = 50 marks | # |
| MCSL-222 (2 credits) | 2 hours | 20(P) + 5(V) = 25 marks | 20(P) + 5(V) = 25 marks |
| MCSL-223 (2 credits) | 2 hours | 20(P) + 5(V) = 25 marks | 20(P) + 5(V) = 25 marks |
| MCSL-228 (2 credits) | 2 hours | 40(P) + 10 (V) = 50 marks | # |
| MCSL-229 (2 credits) | 2 hours | 20(P) + 5(V) = 25 marks | 20(P) + 5(V) = 25 marks |

P- Problems given in the exam paper, V –viva-voce for that section.

# 5     Academic Counselors' Mapping:

The counsellor should have relevant teaching experience in the related course. The mapping of some of the present courses to new courses is shown in the following table. For all other course new counsellorsmay be appointed through the due process of appointment of counsellors.

| Academic Counsellor's Mapping | | | | |
|---|---|---|---|---|
| Counsellor of MCA | | Approved For | MCA(New) | |
| Course Code | Title of the Oourse | | Course Code | Title of the Course |
| MCS-031 | Design and Analysis of Algorithms | | MCS-211 | Design and Analysis of Algorithms |
| MCS-013 or MCS-033 | Discrete Mathematics or Advanced Discrete Mathematics | | MCS-212 | Discrete mathematics |
| MCS-034 | Software Engineering | | MCS-213 | Software Engineering |
| MCS-042 | Data Communication and Computer Networks | | MCS-218 | Data Communication and Computer Networks |
| MCS-032 | Object Oriented Analysis and Design | | MCS-219 | Object Oriented Analysis and Design |
| MCS-051 | Advanced Internet Technologies | | MCS-220 | Web Technologies |
| MCS-035 & MCSL-036 | Accountancy and Financial Management & Lab course  (Part 3) | | MCS-225 | Accountancy and Financial Management |

⋆ Subject to fulfilment of the minimum eligibility criteria as per the IGNOU Academic Counsellor Norms / UGC ODL regulations 2020. For all the remaning courses of MCA-New , new counsellor's having qualifications as per the UGC regualtions 2020 with relavant experience of teaching the related courses , may be appointed through the due process of appointment of counsellors.

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