DEPARTMENT OF
MATHEMATICS & MCA
Dr. Shyama Prasad Mukherjee University, Ranchi
Following Up-graded to Ranchi College

www.dspmuranchi.ac.in
email-mca@dspmuranchi.ac.in

2. **End Semester Examination (ESE):**

   There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. Question No.1 will be very short answer type consisting of five questions of one mark each. Question No.2 will be short answer type five questions of five marks each, out of which any three are to be answered. **Group B will contain descriptive type** seven questions of ten marks each, out of which any four are to be answered.

3. **Sessional Examination------------ 50 Marks**

   There should be one External and one internal examiner for each sessional Examination.

4. **Question Paper Pattern:**

   The question paper shall consist of two sections: **Group A is compulsory** and will contain two questions. Question No.1 will be very short answer type consisting of five questions of one mark each. Question No.2 will be short answer type five questions of five marks each, out of which any three are to be answered. **Group B will contain descriptive type** seven questions of ten marks each, out of which any four are to be answered.

8) **Student Discipline**

   Every student is required to observe a polite and disciplined behaviour both inside and outside the campus and should not indulge in any activity which would tend to bring down the prestige of the Institute/Department or disturb the peaceful and congenial environment of the campus.

   An act of indiscipline on the part of the student may result into adequate discredit and a mention in his/her academic grade card and/or transcript.

   Note: The department in consultation with the university shall have the right to change/modify any regulation or part thereof in the academic interest of the students.

9. **Eligibility for Appearing in Semester Examination**

   1. A student shall be eligible in an examination provided he/she pursues a regular course of study and attends at least 75% of class in each theory and sessional subject during the semester. The attendance shall be considered from the date of admission of the candidate in the institution. Attendance record will be compiled at the time of each test and the students with poor attendance will informed through notification. The guardian will also be informed through a

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SEMESTER IV   **8 Papers**

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Total (100 x 4 = 400 Marks) + (50 Marks) + (200 Marks) = 650Marks

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I. <u>CORE COURSE - I [CCMCA401]</u>:   (Credits:Theory-04)

Marks: 30 (SIA: 20Th. 1Hr + 5Attd. + 5Assign.) + 70 (ESE: 3Hrs)=100	Pass Marks (SIA:17 + ESE:28)=45

Instruction to Question Setter for
Mid Semester Examination (MSE):
*There will be **two** groups of questions in written examinations of 20 marks. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered.*

End Semester Examination (ESE):
*There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short answer type** consisting of five questions of 1 mark each. **Question No.2 will be short answer type** of 5 marks. **Group B will contain descriptive type seven** questions of ten marks each, out of which any five are to be answered.*

Note: *There may be subdivisions in each question asked in Theory Examinations*
The Mid Semester Examination shall have three components. (a) Two Semester Internal Assessment Test (SIA) of 20 Marks each, (b) Class Attendance Score (CAS) of 5 marks and (c) Class Performance Score (CPS) of 5 marks.

(Attendance Upto75%, 1mark; 75<Attd.<80, 2 marks; 80<Attd.<85, 3 marks; 85<Attd.<90, 4 marks; 90<Attd, 5 marks).

PYTHON PROGRAMMING   **Theory: 45 Lectures; Tutorial: 15 Hours**

Unit I Introduction to Python: The Python Language, The Python Standard Library and Extension Units, Python Implementations, Python Development and Versions, Python Resources.

The Python Language: Lexical Structure, Data types, Variables and Other References, Expression and Operators, Numeric Operations, Sequence Operations, Set Operations, Dictionary Operations, The print Statement, Control Flow Statements, Functions.

Object-Oriented Python: Classes and Instances, Special Methods, Decorators, Meta classes.

Unit II Exceptions: The TRY Statement, Exception Propagation, The Raise Statement, Exception Objects, Custom Exception Classes, Error-Checking Strategies.

Units: Unit Objects, Unit Loading, Packages, The Distribution Utilities (distutils).

Core Built-ins: Built-in types, Built-in Functions, The sys Unit, The copy Unit, The Collections Unit, The Functional Unit, The Bisect Unit, The Heapq Unit, The User Dict Unit, The Optparse Unit, The Itertools Unit.

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Strings and Regular Expressions: Methods of String Objects, The String Unit, String Formatting, The Pprint Unit, The Repr Unit, Unicode, Regular Expressions and the Re Units.

Unit III File and Text Operations: Other chapters that also deal with Files, Organization of this Chapter, File Objects, Auxiliary Unit for File I/O, The String IO and String IO Units, Compressed Files, The OS Unit, File System Operations, Text Input and Output, Richer-Text I/O, Interactive Command Sessions, Internationalization.

Persistence and Databases: Serialization, DBM Unit, Berkeley DB Interfacing, The Python Database API (DBAPI) 2.0

Unit IV Time Operation: The Time Unit, The Date Time Unit, The Pytz Unit, The dateutil Unit, The sched Unit, The calender Unit, Themx. Date Time Unit.
Controlling Execution: Dynamic Execution and the exec Statement, Internal Types, Garbage Collection, Termination Functions, Site and User Customization.

Unit V Thread and Processes: Thread in Python, The thread Unit, The Queue Unit, The Threading Unit, Threaded Program Architecture, Process Environment, Running Other Programs, The map Unit.

Unit VI Numeric Processing: The Math and cMath Unit, The Operator Unit, Random and Pseudorandom numbers, The Decimal Unit, The gmpy Unit.
Array Processing: The Array Unit, Extensions for Numeric Array Computation, The Numeric Package, Array Objects, Universal Functions (ufuncs), Auxiliary Numeric Units.

Reference Books:

☐ 1.Alex Martelli- PYTHON IN A NUTSHELL,2ND Edition, O'REILLY, 2012
☐ 2.Mark Lutz-Python reference,5thedition,O'Reilly

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Unit –VII Expert System: Need of expert system, Knowledge acquisition, MYCIN

Reference books:

o   Russel and P.Norvig, Artificial Intelligence: A modern Approach.

o   Elain Rich and Kelvin Knight, Artificial Intelligence.

o   Nils J Nilson, Artificial intelligence: A new Synthesis.