# DATTA MEGHE INSTITUTE OF MEDICAL SCIENCES (DU)

# SCHOOL OF ALLIED SCIENCES

**DISCOVER A NEW WAY OF LEARNING**

**Proposed**

**Curriculum Document for**

**Regular Mode& ODL Mode**

## B.Sc. IT (Healthcare)

[Bachelor of Science in Information Technology for Healthcare]

# Year of Implementation

Implemented from the AY 2020-21.

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# Preamble:

"Everyone should get a little exposure to computer science because it really forces you to think in a slightly different way, and it's a skill that you can apply in life in general, whether you end up in computer science or not."……..**Tony Hsieh**.

Significant steps are undertaken by the Datta Meghe Institute of Medical Sciences to enhance academic standards and education quality, including innovation and curriculum changes, the teaching-learning process, assessment and evaluation processes, in addition to governance and other matters. From time to time, the university formulates different rules and guidelines to strengthen the education system and ensure minimum standards and quality.

The grading system is considered to be higher than the system of traditional marks and has therefore been adopted in India and abroad by top institutions. The implementation of a standardized grading system is also beneficial. This will promote student mobility between institutions within and across countries and will also enable future employers to evaluate student results.

## Need for BSC IT Healthcare-Regular& ODL Mode Program

BSC IT Healthcare (Bachelor of Science in Information Technology for Healthcare) (Regular Mode) is a three-year professional Bachelor's Degree in Information Technology awarded in India. The graduate program is designed to meet the growing demand for qualified professionals in the field of Information Technology. The program is inclined more toward Application Development and thus has more emphasis on latest programming language and tools to develop better and faster applications.

BSC IT is a course exclusively designed to meet the requirements for IT trained students for various organizations. This course significantly emphasizes planning, designing and building of complex commercial application software and system software. The course also places equal importance on functional knowledge in various areas. Now, it is specialized with Healthcare system so that, students will have full knowledge about the System used in Medical field, its Complex data and predictive analysis for clinical data. Healthcare providers realized that Technology can play vital role and adopted it intensively in operations to improve patients care.

A three year full-time course is not just a graduate course; it is also a complete professional grooming for students for a successful career in the IT Industry with Emerging trends in Healthcare.

## BSC IT Healthcare- Regular Mode– Goal & Objectives

- **PEO 1:**To progress their career productively in software industry, medical, academia, research, entrepreneurial pursuit, government, consulting firms and other Information Technology enabled services especially in Healthcare.
- **PEO 2:**To achieve peer-recognition; as an individual or in a team; by adopting ethics and professionalism and communicate effectively to excel well in cross culture and inter-disciplinary teams.
- **PEO 3:**To continue a lifelong professional development in computing that contributes in self and societal growth.

## DATTA MEGHE INSTITUTE OF MEDICAL SCIENCES - VISION AND MISSION:

**Vision:**

To emerge as the Global Centre of excellence in the best evidence based higher education encompassing a quality centric, innovative and interdisciplinary approach, generating regulative research and offering effective and affordable health care for the benefit of the mankind.

**Mission:**

DMIMS shall develop competent, confident, concerned, compassionate globally relevant professionals by quality, learner, community and evidence centric 'competency-based model' of higher education with value orientation, through all its constituent units. It shall foster a conducive milieu for interdisciplinary research practices generating consequential and meaningful outcomes for the nation in general and the region in particular. It shall deliver comprehensive quality health care services to the rural, needy, marginalized and underprivileged populace. This shall be achieved through appropriate collaborative linkages and a proactive, transparent and accountable decentralized governance system.

## About School of Allied Sciences:
## VISION, MISSION AND VALUES

Building a professional workforce of allied research experts. Not only for the current jobs but also for the tasks proposed to be generated in times to come, to invoke the required talents, logical reasoning, out of box thought.

## THE MISSION OF OURS:

Meeting the needs of lifelong learning by providing learners of all ages with high-quality, affordable, creative and sensitive education and training services, drawing on the strengths of and working with the resources of the university and the community.

**VALUES OF OURS:**

- Providing superb service
- Promoting a working and learning atmosphere that is respectful
- Engaging alliances for outreach and partnerships and giving back to the community
- Providing a range of state, national and international quality programmes and services
- Bringing together the university, continuing education, and our culture
- Opening inclusive, open and protected routes for all students
- Growing Creative Chances
- Responsibly managing capital.

## PROGRAMME OUTCOMES (PO) for BSC IT HEALTHCARE:

PO1) Computational knowledge: Acquire knowledge of Computing Fundamentals, Basic Mathematics, Computing Specialization and Domain Knowledge of proper computing models from defined problems.

PO2) Problem analysis: Identify, formulate review research literate and analyze complex engineering problems reading substantiated conclusions using first principles mathematics, computing science and relevant domains.

PO3) Design/development of solutions: Ability to design system s/w or process as per needs and specifications.

PO4) Conduct investigations of complex computing problems: Use research-based knowledge and research methods including design of experiments, analysis & interpretation of data & synthesis of information to provide valid conclusions.

PO5) Modern Tool Usage: Ability to demonstrate skills to use modern s/w & h/w tools to analyze problems.

PO6) Professional Ethics: Apply ethical principles and commit to professional ethics and cyber regulations.

PO7) Life-Long Learning: Ability to develop confidence for self-education and life-long learning in the broadest context of technological change.

PO8) Project management and finance: Ability to demonstrate knowledge & understanding of the engineering and management principles and apply them as a member & as a leader in a team to manage multidisciplinary projects.

## ELIGIBILITY FOR ADMISSION:

Passed Higher Secondary (10+2) with Science (Mathematics or Biology)

**INTAKE CAPACITY-**

30 For Regular Mode

**TEACHING LEARNING METHODOLOGY** –

- The modality of teaching for teaching learning modules will be in the form of didactic
- Lectures, self-directed learning, seminars presentation Microteaching, Practical in Computer Lab etc.

**MEDIUM OF INSTRUCTION:**

- English shall be the medium of instruction for all the subjects of study and for examination of the course.

**ATTENDANCE:**

A candidate has to secure minimum 80% attendance in overall with at least-

1. 75% attendance in class room teaching.
2. 80% in computer skills training (practical) for qualifying to appear for the final examination

**COURSE DURATION-**

The duration of BSC IT Healthcare programme, under this Direction, shall be of Three years consisting of six semesters i.e. Semesters-I & II in first year and Semesters-III &IV in second year and Semesters-V & VI in third year.

## CAREER OPPORTUNITY FOR BSC IT HEALTHCARE (REGULAR MODE):

- Software Developer: As a software developer, you would have a central role in building, testing, installing, and maintaining software systems for your clients. Career opportunity will be as Software Developer in IT and in Healthcare or Medical Field.
- Hardware Engineer
- Database Engineer
- Cloud Architect
- Data Scientist in Healthcare: As a Data Scientist in Healthcare plays a huge role in data management. By crunching numbers, data scientists in healthcare are exploring opportunities to predict drug behavior and better understand human disease.
- Business Analyst
- Healthcare Analyst: As a Healthcare Analyst gathers and interprets data from a variety of sources (e.g., the electronic health record, billing claims, cost reports, and patient satisfaction surveys) to help organizations improve the quality of care, lower the cost of care, and enhance the patient experience.
- Technical Writer

## PROGRAMME STRUCTURE

BSC IT Healthcare is a 3 year program, comprising of 6 semesters. Full BSC IT Healthcare Regular program will be 140 credits program. Semester I have core subjects of IT. Semester II, III, IV and V have specialized Healthcare subjects included along with core subjects from IT. Semester VI is embedded with Apprenticeship /Internship with Sector Skill Councils certification or at any Hospital.
Project is also included in Semester VI.

**BSC IT Healthcare Regular & ODL Programme Course Types & Evaluation Pattern:**

| Course Code | Core Courses | Internal/ University Exam | Instructions Hours | Tutorial Hours | Practical Hours | Total Hours | Marks | | | Credits |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Semester End Exam | Internal Assessment | Total | |
| BSC IT Healthcare Semester –I | | | | | | | | | | |
| BSCH-101 | Communication skills/ English | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-102 | Discrete Mathematics-I | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-103 | Basic Computer studies | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-104 | Introduction to Digital Electronics | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-105 | Programming Concepts using C | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH106 (PR-I) | Basic Computer studies Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSCH107 (PR-II) | Programming Concepts using C Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Semester -I Credits | | | | | | | | | 700 | 24 |
| BSC IT Healthcare Semester –II | | | | | | | | | | |
| BSC H - 201 | Discrete Mathematics-II | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H - 202 | Data Structure and Algorithm | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H - 203 | Web Page Design (HTML+CSS) | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H - 204 | Object Oriented Programming using C++ | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H - 205 | Principles of Healthcare Management | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 2 |
| BSC H - 206 (PR-I) | Web Page Design Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSC H - 207 (PR-II) | Object Oriented Programming using C++ Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| | | | | | | | | | | |
| Total Semester -II Credits | | | | | | | | | 700 | 22 |
| BSC IT Healthcare Semester –III | | | | | | | | | | |
| BSC H - 301 | Numerical Methodology & Statistics | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H - 302 | Micro-processor and Microcontroller | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BSCH-303 | Introduction to Computer Networks | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-304 | Hospital Administration in IT | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 2 |
| BSCH-305 | Operating System & Shell Programming | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-306 (PR-I) | Micro-processor and Microcontroller Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSCH-307(PR-II) | Operating System & Shell Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| Total Semester -III Credits | | | | | | | | | 700 | 22 |
| BSC IT Healthcare Semester –IV | | | | | | | | | | |
| BSCH-401 | Database Management Systems | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-402 | Introduction To Core java | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-403 | Data Mining and Warehousing | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-404 | Clinical Instrumentation with Embedded Systems | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-405 | Artificial Intelligence for Healthcare | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSCH-406 (PR-I) | Database Management Systems Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSCH-407 (PR- | Introduction To Core java Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| II) | | | | | | | | | | |
| | Total Semester -IV Credits | | | | | | | | 700 | 24 |
| BSC IT Healthcare Semester –V | | | | | | | | | | |
| BSC H-501 | Visual Basic Programming | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-502 | Python | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-503 | Compiler Construction | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-504 | Cyber Security for Healthcare | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-505 | Applied Health Informatics | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-506(PR-I) | Visual Basic Programming Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSC H-507 (PR-II) | Python Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| Total Semester -V Credits | | | | | | | | | 700 | 24 |
| BSC IT Healthcare Semester –VI | | | | | | | | | | |
| BSC H - 601 | Apprenticeship /Internship with Sector Skill Councils certification or at any Hospital | - | 10 | 50 | - | 60 | 0 | 100 | 100 | 4 |
| BSC H-602 | RDBMS using Oracle | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |
| BSC H-603 | Image Processing for Healthcare | Uni | 50 | 10 | - | 60 | 70 | 30 | 100 | 4 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BSCH-604 (PR-I) | Image Processing for Healthcare Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSCH-605 (PR-II) | RDBMS using Oracle Practical | Uni | - | - | 30 | 30 | 70 | 30 | 100 | 2 |
| BSCH - 606 | Project | Uni | 30 | 30 | - | 60 | 150 | 50 | 200 | 8 |
| Total Semester -VI Credits | | | | | | | | | 700 | 24 |
| Total Credits | | | | | | | | | 4200 | 140 |

# BSC IT Healthcare- (Bachelor of Science in Information Technology for Healthcare)

# Regular Mode

Semester -I

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH-101 | Communication skills/ English | 4 | 30 | 70 | 100 | 60 |
| BSCH-102 | Discrete Mathematics-I | 4 | 30 | 70 | 100 | 60 |
| BSCH-103 | Basic Computer studies | 4 | 30 | 70 | 100 | 60 |
| BSCH-104 | Introduction to Digital Electronics | 4 | 30 | 70 | 100 | 60 |
| BSCH-105 | Programming Concepts using C | 4 | 30 | 70 | 100 | 60 |
| BSCH106 (PR-I) | Basic Computer studies Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH107 (PR-II) | Programming Concepts using C Practical | 2 | 30 | 70 | 100 | 30 |
| | Total | 24 | | | 700 | |

Semester-II

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH - 201 | Discrete Mathematics-II | 4 | 30 | 70 | 100 | 60 |
| BSCH - 202 | Data Structure and Algorithm | 4 | 30 | 70 | 100 | 60 |
| BSCH - 203 | Web Page Design | 4 | 30 | 70 | 100 | 60 |
| BSCH - 204 | Object Oriented Programming using C++ | 4 | 30 | 70 | 100 | 60 |
| BSCH - 205 | Principles of Healthcare Management | 2 | 30 | 70 | 100 | 30 |
| BSCH - 206 (PR-I) | Web Page Design Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH - 207 (PR-II) | Object Oriented Programming using C++Practical | 2 | 30 | 70 | 100 | 30 |
| | Total | 22 | | | 700 | |

Semester -III

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH -301 | Numerical Methodology & Statistics | 4 | 30 | 70 | 100 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| BSCH -302 | Micro-processor and Microcontroller | 4 | 30 | 70 | 100 | 60 |
| BSCH -303 | Introduction to Computer Networks | 4 | 30 | 70 | 100 | 60 |
| BSCH -304 | Hospital Administration in IT | 2 | 30 | 70 | 100 | 60 |
| BSCH -305 | Operating System & Shell Programming | 4 | 30 | 70 | 100 | 60 |
| BSCH -306 (PR-I) | Micro-processor and Microcontroller Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH - 307(PR-II) | Operating System & Shell Practical | 2 | 30 | 70 | 100 | 30 |
| | Total | 22 | | | 700 | |

Semester-IV

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH - 401 | Database Management Systems | 4 | 30 | 70 | 100 | 60 |
| BSCH - 402 | Introduction To Core java | 4 | 30 | 70 | 100 | 60 |
| BSCH - 403 | Data Mining and Warehousing | 4 | 30 | 70 | 100 | 60 |
| BSCH - 404 | Clinical Instrumentation with Embedded Systems | 4 | 30 | 70 | 100 | 60 |
| BSCH -405 | Artificial Intelligence for Healthcare | 4 | 30 | 70 | 100 | 60 |
| BSCH - 406 (PR-I) | Database Management Systems Practical | 2 | 30 | 70 | 100 | 30 |

| | | | | | | |
|---|---|---|---|---|---|---|
| BSCH - 407 (PR-II) | Introduction To Core java Practical | 2 | 30 | 70 | 100 | 30 |
| | Total | 24 | | | 700 | |

Semester- V

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH-501 | Visual Basic Programming | 4 | 30 | 70 | 100 | 60 |
| BSCH-502 | Python | 4 | 30 | 70 | 100 | 60 |
| BSCH-503 | Compiler Construction | 4 | 30 | 70 | 100 | 60 |
| BSCH-504 | Cyber Security for Healthcare | 4 | 30 | 70 | 100 | 60 |
| BSCH-505 | Applied Health Informatics | 4 | 30 | 70 | 100 | 60 |
| BSCH-506(PR-I) | Visual Basic Programming Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH-507 (PR-II) | Python Practical | 2 | 30 | 70 | 100 | 30 |
| | Total | 24 | | | 700 | |

Semester-VI

| Course Code | Course Title | Credits | Marks | | Total Marks | Regular Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH - 601 | Apprenticeship /Internship with Sector Skill Councils certification or at any Hospital | 4 | Nil | 100 | 100 | 60 |
| BSCH-602 | RDBMS using Oracle | 4 | 30 | 70 | 100 | 60 |
| BSCH-603 | Image Processing for Healthcare | 4 | 30 | 70 | 100 | 60 |
| BSCH-604(PR-I) | Image Processing for Healthcare Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH-605 (PR-II) | RDBMS using Oracle Practical | 2 | 30 | 70 | 100 | 30 |
| BSCH - 606 | Project | 8 | 150 | 50 | 200 | 120 |
| | Total | 24 | | | 700 | |

**Programme Title**

**BSC IT Healthcare- (Bachelor of Science in Information Technology for Healthcare)**

**ODL Mode**

Semester -I

| Course Code | Course Title | Credits | Marks | | Total Marks | ODL Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH-101 | Communication skills/ English | 4 | 30 | 70 | 100 | 120 |
| BSCH-102 | Discrete Mathematics-I | 4 | 30 | 70 | 100 | 120 |
| BSCH-103 | Basic Computer studies | 4 | 30 | 70 | 100 | 120 |
| BSCH-104 | Introduction to Digital Electronics | 4 | 30 | 70 | 100 | 120 |
| BSCH-105 | Programming Concepts using C | 4 | 30 | 70 | 100 | 120 |
| BSCH106 (PR-I) | Basic Computer studies Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH107 (PR-II) | Programming Concepts using C Practical | 2 | 30 | 70 | 100 | 60 |
| | Total | 24 | | | 700 | |

Semester-II

| | | | Marks | | ODL Mode course |
|---|---|---|---|---|---|

| Course Code | Course Title | Credits | Formative Continuous Assessment | Summative Assessment | Total Marks | delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| BSCH - 201 | Discrete Mathematics-II | 4 | 30 | 70 | 100 | 120 |
| BSCH - 202 | Data Structure and Algorithm | 4 | 30 | 70 | 100 | 120 |
| BSCH - 203 | Web Page Design | 4 | 30 | 70 | 100 | 120 |
| BSCH - 204 | Object Oriented Programming using C++ | 4 | 30 | 70 | 100 | 120 |
| BSCH - 205 | Principles of Healthcare Management | 2 | 30 | 70 | 100 | 60 |
| BSCH - 206 (PR-I) | Web Page Design Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH - 207 (PR-II) | Object Oriented Programming using C++ Practical | 2 | 30 | 70 | 100 | 60 |
| | Total | 22 | | | 700 | |

Semester -III

| | | | Marks | | ODL Mode course |
|---|---|---|---|---|---|

| Course Code | Course Title | Credits | Formative Continuous Assessment | Summative Assessment | Total Marks | delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| BSCH - 301 | Numerical Methodology & Statistics | 4 | 30 | 70 | 100 | 120 |
| BSCH - 302 | Micro-processor and Microcontroller | 4 | 30 | 70 | 100 | 120 |
| BSCH - 303 | Introduction to Computer Networks | 4 | 30 | 70 | 100 | 120 |
| BSCH - 304 | Hospital Administration in IT | 2 | 30 | 70 | 100 | 60 |
| BSCH - 305 | Operating System & Shell Programming | 4 | 30 | 70 | 100 | 120 |
| BSCH - 306 (PR-I) | Micro-processor and Microcontroller Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH - 307(PR-II) | Operating System & Shell Practical | 2 | 30 | 70 | 100 | 60 |
| | Total | 22 | | | 700 | |

Semester-IV

| Course Code | Course Title | Credits | Marks | | Total Marks | ODL Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH - 401 | Database Management Systems | 4 | 30 | 70 | 100 | 120 |
| BSCH - 402 | Introduction To Core java | 4 | 30 | 70 | 100 | 120 |
| BSCH - 403 | Data Mining and Warehousing | 4 | 30 | 70 | 100 | 120 |
| BSCH - 404 | Clinical Instrumentation with Embedded | 4 | 30 | 70 | 100 | 120 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Systems | | | | | |
| BSCH -405 | Artificial Intelligence for Healthcare | 4 | 30 | 70 | 100 | 120 |
| BSCH - 406 (PR-I) | Database Management Systems Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH - 407 (PR-II) | Introduction To Core java Practical | 2 | 30 | 70 | 100 | 60 |
| | Total | 24 | | | 700 | |

Semester- V

| Course Code | Course Title | Credits | Marks | | Total Marks | ODL Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH-501 | Visual Basic Programming | 4 | 30 | 70 | 100 | 120 |
| BSCH-502 | Python | 4 | 30 | 70 | 100 | 120 |
| BSCH-503 | Compiler Construction | 4 | 30 | 70 | 100 | 120 |
| BSCH-504 | Cyber Security for Healthcare | 4 | 30 | 70 | 100 | 120 |
| BSCH-505 | Applied Health Informatics | 4 | 30 | 70 | 100 | 120 |
| BSCH-506(PR-I) | Visual Basic Programming Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH-507 (PR-II) | Python Practical | 2 | 30 | 70 | 100 | 60 |
| | Total | 24 | | | 700 | |

Semester-VI

| Course Code | Course Title | Credits | Marks | | Total Marks | ODL Mode course delivery: Learner's engagement in hours |
|---|---|---|---|---|---|---|
| | | | Formative Continuous Assessment | Summative Assessment | | |
| BSCH - 601 | Apprenticeship /Internship with Sector Skill Councils certification or at any Hospital | 4 | Nil | 100 | 100 | 120 |
| BSCH-602 | RDBMS using Oracle | 4 | 30 | 70 | 100 | 120 |
| BSCH-603 | Image Processing for Healthcare | 4 | 30 | 70 | 100 | 120 |
| BSCH-604(PR-I) | Image Processing for Healthcare Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH-605 (PR-II) | RDBMS using Oracle Practical | 2 | 30 | 70 | 100 | 60 |
| BSCH - 606 | Project | 8 | 150 | 50 | 200 | 240 |
| | Total | 24 | | | 700 | |

Norms of Credit Structure for Self Learning Material Development Non-Print Form

**Table 3: Norms of Credit Structure for Self Learning Material Development Non-Print Form**

| No. of counseling sessions (theory) | | | Size of e-content (in terms of units) | Study input | Credit value of the course |
|---|---|---|---|---|---|
| Syn Chat 5% | Asyn** Discussion Forum (comp) | Syn* (f2f)# (optl) 10% | | | |
| 3 hrs | 2-10 topics per course as per the subject | 6 hrs | 6-8 units | 60 hours | 2 credits |
| 6 hrs | -do- | 12 hrs | 14-16 units | 120 hours | 4 credits |
| 9 hrs | -do- | 18 hrs | 20-24 units | 180 hours | 6 credits |
| | -do- | 24 hrs | 30-34 units | 240 hours | 8 credits |

* Syn : Synchronous

**Asyn : Asynchronous

# f2f : face-to-face

## Norms for Delivery of Courses in ODL Mode

| S. No. | Credit value of the course | No. of Weeks | No. of Interactive Sessions | | Hours of Study Material | | Self-Study hours including Assessment etc. | Total Hours of Study (based on 30 hours per credit) |
|---|---|---|---|---|---|---|---|---|
| | | | Synchronous Online Counselling/ Webinars/ Interactive Live Lectures (1 hour per week) | Discussion Forum/ asynchronous Mentoring (2 hours per week) | e-Tutorial in hours | e-Content hours | | |
| 1. | 2 credits | 6 weeks | 6 hours | 12 hours | 10 | 10 | 22 | 60 |
| 2. | 4 credits | 12 weeks | 12 hours | 24 hours | 20 | 20 | 44 | 120 |
| 3. | 6 credits | 14 weeks | 14 hours | 28 hours | 30 | 30 | 66 | 180 |
| 4. | 8 Credits | 16 weeks | 16 hours | 32 hours | 40 | 40 | 88 | 240 |

## Elaboration of Norms for Delivery of Courses in ODL Mode

## BSC IT Healthcare ODL

| SR. No. | Credit value of the course | No. of Weeks | e-Tutorial; which shall contain: Video and Audio Content in an organized form, Animation, Simulations, video demonstrations in Hours | e-Content; which shall contain; self-instructional material (digital Self Learning Material), e-Books, illustrations, case studies, presentations etc, and also contain Web Resources in Hours | Discussion forum/ Webinar for raising of doubts and clarifying the same on real time basis by the Course Coordinator/ Contact Session in Hours – 10 % of Total Hours | Assessment, which shall contain; Problems and Solutions, which could be in the form of Multiple Choice Questions in Hours | Self-Study hours including Assessment etc | Total Hours of Study (based on 30 hours per credit |
|---|---|---|---|---|---|---|---|---|
| 1. | 4 Credits | 12 Weeks | 20 Hrs. | 20 Hrs. | 12Hrs for Contact Session + 8 Hrs. For Discussion Forum | 10 Hrs. | 50 Hrs. | 120 Hrs. |