Re-Accredited 'B++' 2.86 CGPA by NAAC
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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ક્રમાંકઃએસ./પરિપત્ર/૧૬૦૯૦/૨૦૨૩
તા.૨૭/૦૬/૨૦૨૩

પ્રતિ,
વડાશ્રી,
બાયોટેકનોલોજી ડિપાર્ટમેન્ટ,
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી,
સુરત.

**વિષયઃ–** બી.એસસી. (Honours) બાયોટેકનોલોજી MDC/SEC વિષયનાં અભ્યાસક્રમ બાબત.

સુજ્ઞ શ્રી,

સવિનય જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૨૩–૨૪ થી અમલમાં આવનાર NEP-2020 અંતર્ગત B.Sc. Biotechnology પ્રોગ્રામના Multidisciplinary અને Skill Enhancement Course નો પેટાસમિતિ દ્વારા તૈયાર કરેલ અભ્યાસક્રમ સંદર્ભે બાયોટેકનોલોજી વિષયની (નિયુકત) એડહોક સમિતિની તા.૧૦/૦૬/૨૦૨૩ ની સભાનાં ઠરાવ ક્રમાંકઃ ૪ અન્વયે કરેલ ભલામણ સ્વીકારી વિજ્ઞાન વિદ્યાશાખાની તા.૧૯/૦૬/૨૦૨૩ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૬ અન્વયે કરેલ ભલામણ એકેડેમિક કાઉન્સિલની તા.૨૩/૦૬/૨૦૨૩ની સભાનાં ઠરાવ ક્રમાંકઃ૩૬ થી મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

**<u>બાયોટેકનોલોજી વિષયની (નિયુકત) એડહોક સમિતિની તા.૧૦/૦૬/૨૦૨૩ની સભાનાં ઠરાવક્રમાંકઃ ૪</u>**

:: આથી ઠરાવવામાં આવે છે કે,

(a) શૈક્ષણિક વર્ષ–૨૦૨૩–૨૪થી અમલમાં આવનારNEP-2020 અંતર્ગત બી.એસસી. બાયોટેકનોલોજી પ્રોગ્રામનો Multidisciplinary Course -" Basic Healthcare" નો પેટાસમિતિ દ્વારા તૈયાર કરેલ અભ્યાસક્રમ સર્વાનુમતે મંજૂર કરી તે મંજૂર કરવા વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(b) શૈક્ષણિક વર્ષ–૨૦૨૩–૨૪થી અમલમાં આવનારNEP-2020 અંતર્ગત બી.એસસી. બાયોટેકનોલોજી પ્રોગ્રામનો Skill Enhancement Course - Bio Manufacturing નો પેટાસમિતિ દ્વારા તૈયાર કરેલ અભ્યાસક્રમ સર્વાનુમતે મંજૂર કરી તે મંજૂર કરવા વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

**વિજ્ઞાન વિદ્યાશાખાની તા.૧૯/૦૬/૨૦૨૩ ની સભાની ઠરાવ ક્રમાંકઃ૧૬**

:: આથી ઠરાવવામાં આવે છે કે, બાયોટેકનોલોજી વિષયની(નિયુકત) એડહોક સમિતિની તા.૧૦/૬/૨૦૨૩ની સભાનાં ઠરાવ ક્રમાંકઃ ૪ અન્વયે કરેલ ભલામણ સ્વીકારી (a) શૈક્ષણિક વર્ષ–૨૦૨૩–૨૪ થી અમલમાં આવનાર NEP-2020 અંતર્ગત બી.એસસી. બાયોટેકનોલોજી પ્રોગ્રામનો Multidisciplinary Course -" Basic Healthcare" તથા (b) શૈક્ષણિક વર્ષ–૨૦૨૩–૨૪ થી અમલમાં આવનાર NEP-2020 અંતર્ગત બી.એસસી. બાયોટેકનોલોજી પ્રોગ્રામનો Skill Enhancement Course- Bio Manufacturing નો અભ્યાસક્રમ મંજૂર કરવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

**એકેડેમિક કાઉન્સિલની તા.૨૩/૦૬/૨૦૨૩ની સભાનાં ઠરાવ ક્રમાંકઃ૩૬**

:: આથી ઠરાવવામાં આવે છે કે, વિજ્ઞાન વિદ્યાશાખાની તા.૧૯/૦૬/૨૦૨૩ ની સભાની ઠરાવ ક્રમાંકઃ૧૫ અન્વયે કરેલ ભલામણ સ્વીકારી મંજૂર કરવામાં આવે છે.

(બિડાણઃ ઉપર મુજબ)

કુલસચિવ

પ્રતિ,
૧) અધ્યક્ષશ્રી, વિજ્ઞાન વિદ્યાશાખા,
૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....જાણ સારૂ.

# VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

## Multidisciplinary Course: Basic Healthcare

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|---|---|
| Course Code | |
| Course Title | **Basic Healthcare** |
| Credits | 3 |
| Course Level | 100-199 |
| Total engagement | 3 Credits x 15 Hours = 45 Hours |
| Teaching per week | 3 h |
| Minimum weeks per semester | 15 weeks (Including classwork, examination, preparation & holidays) |
| Effective from | 2023-2024 |
| Purpose of Course | This course is for all students who wants to learn fundamental concepts related to self-care and care for others which gives them confidence to take immediate actions during emergencies. Basic health Care course orients learner to understand some important aspects to take care and steps in case of various types of health related emergencies. |
| Course Objectives | -To understand basic concepts of First aid, this can help to society as well as own self.<br>-Person can deal with current emergency situation on quick base.<br>-Knowledge of First aid can save life or may give temporary relief to prevent worst situation in absence of health professional.<br>-It helps to realize moral duties and values. |
| Course Outcomes | CO1: Students will able to learn about primary aid skills.<br>CO2: Student will deal to handle present emergency situation with confidence. Students will develop basic skill which is needed to assess the ill or injured person.<br>CO3: Students will able to take logical decisions and shall be able to take appropriate immediate actions. Hospital visit is included for brief practical understanding and to visualize demonstration by expert regarding first aid. |
| Mapping between COs with PSOs | |

| | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PSO6 | PSO7 | PSO8 |
|---|---|---|---|---|---|---|---|---|
| CO1 | | | | | | | | |
| CO2 | | | | | | | | |
| CO3 | | | | | | | | |

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|---|---|---|
| Pre-requisite | Biology; Chemistry; Public Health; Ethics; Medical Terminology | |
| Course Content | **UNIT-1: Preparing to Help (First Aid)**<br>First Aid Techniques; Aim and The Law; Dealing with an Emergency; Stress when giving First Aid and Resuscitation; Primary and Secondary Assessment; Hygiene and Hand Washing; Stress management. | Teaching Hours: 10 |
| | **UNIT-2: Injury & Medical Emergencies**<br>Heart, Blood Circulation, Shock; GI tract, Diarrhoea, Food Poisoning and Diabetes; Respiratory System and Breathing; Nervous System and Unconsciousness; Urinary System, Reproductive System and Emergency Childbirth; Senses, Foreign Bodies in Eye, Ear, Nose or Skin and Swallowed Foreign Objects; Control of Bleeding; Burns: Thermal, Electrical and Chemical; Head, Neck and Back injuries; | Teaching Hours: 20 |

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| | Minor Injuries: Nosebleed, Injured Tooth; Wounds; Bones, Joints and Muscles. | |
| | **UNIT-3: Environmental Emergencies**<br>Heat and Cold Emergencies; Bites and Stings; Poisoning and Poisonous Plants; Lightning; Emotional Considerations; Visits to Hospital. | Teaching Hours: 15 |
| Reference Books | • Indian First Aid Manual (2016) 7th Edition, Indian Red Cross Society.<br>• Basic First Aid, Student book, version 8.0, American Safety and Health Institute, ISBN 978-1-936515-64-6, 1st Edition (2016) | |
| e-learning resources | • https://www.indianredcross.org/publications/FA-manual.pdf<br>• https://www.emcmedicaltraining.com/wp-content/uploads/2016/09/ashi-first-aid-student-book.pdf | |
| Teaching Methodology | Classwork, Discussion, Self-Study, Projects, Seminars and/or Assignment | |
| Evaluation Method | 30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination | |

# VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

## Course: Skill Enhancement Course (SEC)- Biomanufacturing

<table>
<tr><td>Course Code</td><td colspan="3"></td></tr>
<tr><td>Course Title</td><td colspan="3">Bio-manufacturing</td></tr>
<tr><td>Credit</td><td colspan="3">3</td></tr>
<tr><td>Course Level</td><td colspan="3">100-199</td></tr>
<tr><td>Total engagement</td><td colspan="3">2 Credit (Theory) + 1 Credit (Practical) = 60 Hours</td></tr>
<tr><td>Teaching per week</td><td colspan="3">3 h</td></tr>
<tr><td>Minimum weeks per semester</td><td colspan="3">15 weeks (Including classwork, examination, preparation & holidays)</td></tr>
<tr><td>Effective from</td><td colspan="3">2023-2024</td></tr>
<tr><td>Purpose of Course</td><td colspan="3">Students would be acquainted about the role of biology and biological systems to develop products, tools and processes at commercial scale</td></tr>
<tr><td>Course Objective</td><td colspan="3">This course would help new generation to become familiarize with theory, principles of bio manufacturing and all that it entails.</td></tr>
<tr><td>Course Outcomes</td><td colspan="3">CO1: This unit will give overview of Biomanufacturing as such as well as recent advances and future perspective of this field.<br>CO Laboratory Skills: Students would learn how to operate and calibrate the instruments which are used the industries involved in manufacturing activities using biological sources.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td colspan="3"><table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td><td>PSO7</td><td>PSO8</td></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Pre-requisite</td><td colspan="3">Biological Sciences, Microbiology, Biotechnology</td></tr>
<tr><td>Course Content</td><td>UNIT-1: Introduction to Biomanufacturing, History, Pre-modern Biomanufacturing, Biomanufacturing 1.0, Biomanufacturing 2.0, Bio-manufacturing 3.0, Bio-manufacturing 4.0.</td><td>Teaching Hours: 15</td></tr>
<tr><td></td><td>UNIT-2: Different areas in Bio-pharmaceuticals [Engineering: Facilities, Metrology, Validation, Environment Health and Safety; Quality: Microbiological Control, Quality Control; Production: Upstream & Downstream processing, Process Development; Dispatch: Inspection, Labelling & Packaging]</td><td>Teaching Hours: 15</td></tr>
<tr><td></td><td>UNIT-3: Laboratory Skills:<br>-To perform operation and calibration of weighing balance, pipettes and pH meter.<br>-To study the operation and maintenance of Autoclave<br>-To study about Hazard Communication and Audit<br>-To study the production of enzyme by batch fermentation<br>-Demonstration of working of Bioreactor<br>-Industrial Visit</td><td>Teaching Hours: 30</td></tr>
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| Reference Books | • Maggie Bryans, Ph. D. 2012, Introduction to Biomanufacturing, The Northeast Biomanufacturing Center and Collaborative NBC2<br>• Sonia Wallman, 2010, Biomanufacturing Laboratory Manual, Northeast Biomanufacturing Center & Collaborative NBC2 |
| e-learning resources | • https://biomanufacturing.org/curriculum-resources/textbooks-manuals/introduction-to-biomanufacturing<br>• Yi-Heng, Percival Zhang, Jibin Sun, Yanhe Ma, 2017, Biomanufacturing: History and Perspective DOI 10.1007/s10295-016-1863-2 |
| Teaching Methodology | Classwork, Discussion, Self-Study, Projects, Seminars and/or Assignment |
| Evaluation Method | 30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External assessment based on semester end University examination |

## VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

## Course: Skill Enhancement Course (SEC)- Biomanufacturing

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<tr><td>Credit</td><td colspan="2">3</td></tr>
<tr><td>Course Level</td><td colspan="2">100-199</td></tr>
<tr><td>Total engagement</td><td colspan="2">2 Credit (Theory) + 1 Credit (Practical) = 60 Hours</td></tr>
<tr><td>Teaching per week</td><td colspan="2">2 h Theory + 2 h Practical = 4 hours</td></tr>
<tr><td>Minimum weeks per semester</td><td colspan="2">15 weeks (Including classwork, examination, preparation & holidays)</td></tr>
<tr><td>Effective from</td><td colspan="2">2023-2024</td></tr>
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