



Shri Shivaji Education Society, Amravati's
SCIENCE COLLEGE

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President

Dr. Omraj S. Deshmukh
Principal

- 'A+' Grade with 3.51 CGPA (3rd Cycle) Reassessment College by NAAC, Bangalore
- A College with Potential for Excellence identified by UGC, New Delhi
- Member, APQN (Asia Pacific Quality Network)
- Recognized Centre for Higher Learning & Research
- Mentor College under 'Paramarsh Scheme' UGC, New Delhi
- An ISO 21001 : 2018 Certified Institution



Dr. Panjabrao alias Bhausaheb Deshmukh
Founder President

Department of Electronics **SSEA's SCIENCE COLLEGE,** **Congress Nagar, Nagpur**

Program Outcomes, **Program Specific Outcomes and** **Course Outcomes**

For B.Sc. (Electronics) as per NEP-2020
(Effective from 2024-25)

**RASHTRASANT TUKDOJI MAHARAJ
NAGPUR UNIVERSITY, NAGPUR**



As per National Education Policy 2020

B.Sc. Four Years (Honors/Research)

**Curriculum Framework for Eight Semester Degree Course with
Major/Minor Subject**

B.Sc. (Electronics)

NEP (Effective from Session 2024-25)

Notification of University



RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

(Established by Government of Central Provinces Education Department by Notification No. 513, dated 1st of August, 1923 & presently a State University governed by Maharashtra Public Universities Act, 2016 (Maharashtra, Act No. VI of 2017)
(Academic Section)

Rashtrasant Tukadoji Maharaj Nagpur University, Jannalal Bajaj Administrative Building, Mahatma Jotiba Phule Educational Premises, Campus Square to Ambazari T-Point Road, Nagpur-440033

No.RTMNU/ Acad. / 2024/ 175

Date: 15 May 2024

NOTIFICATION

It is notified for general information of all the concerned that the Academic Council in its meeting held on 22nd April 2024 vide item No.1(A to G, J to M, and O to S), 2(A to C & E to H), 3(A to F) and 6 to 08 has approved. The following recommendations of the respective Board of Studies and all Faculties to be effective from the session 2024-2025 & onwards.

Item No	Examination	Details of the approved recommendations
1.	A	B.Sc. Forensic Science Minor changes in the Scheme of Examination of B.Sc. Forensic Science Major (NEP 2020) of semester IV, V, VII (Research), VSEC and DSE for implementation from the academic session 2024-2025 and onwards phasewise
	B	B.Sc. (Environmental Science) Environmental Science and Chemistry have been kept in same group (NEP-2020), hence, students of environmental Science can't take chemistry as minor subject but BOS strongly feels, Environmental Science should be allowed to take chemistry as minor subjects to be included in Group E Basket for implementation from the academic session 2024-25 and onwards phasewise.
	C	B.Sc. (Artificial Intelligence) Syllabus of Artificial Intelligence III, IV, V, and VI semester for Implementation from the academic session 2024-25 and onwards phasewise.
	D	B.Sc. (Artificial Intelligence) New Syllabus of Artificial Intelligence as per NEP-2020 so to be included in Group E Basket for implementation from the academic session 2024-25 and onwards.
	E	B.Sc. (Languages in Science) New syllabus as per NEP 2020 for implementation from the academic Session 2024-25 and onwards. 1. B.Sc Sem. I English (AEC), 2. B.Sc Sem. II Marathi (AEC) 3. B.Sc Sem. II Hindi (AEC), 4. B.Sc Sem. II Gujrathi (AEC), 5. B.Sc Sem. II Sanskrit (AEC) 6. B.Sc Sem. II Urdu (AEC), 7. B.Sc Sem. II Supplementary English (AEC)
	F	B.Sc (Home Science) Scheme of examination as per NEP 2020 of B.Sc. (Home Science) for implementation from the academic session 2024-25 and onwards.
	G	B.Sc. (Home Science) The admission and eligibility conditions for Undergraduate courses of Home Science (B.Sc. Home Science) 10+2 (Higher Secondary Education) in Science/Home Science/Commerce/ MCVC/Arts with Language English, Marathi or Hindi for implementation from the academic session 2024-25 and onwards.
	J	B.Tech. (All Programms) Scheme of Examination and new Syllabus as per NEP-2020 of B.Tech for implementation from the session 2024-25 and onwards.
	K	B.Sc. (Data Science) New Syllabus of B.Sc. Data Science Semester V and VI for implementation from the academic session 2024-2025 and onwards.

L	BCA	ii) ज्या महाविद्यालयांना B.Sc (Computer Application) असे नामांतर हवे आहे. त्या महाविद्यालयांनी BCA च्या ऐवजी B.Sc (Computer Application) अभ्यासक्रमाच्या संलग्नितेची प्रक्रिया पूर्ण करावी.
M	B.Sc. in BFD and BTS	The following book to be included for BFD and BTS course. Curriculum for all semesters for implementation from the academic session 2024-25 and onwards. तंतुनिर्माण व तंतुनिर्माण खंड- १ वस्त्र निर्माती माहिती कोषसुत निर्माण खंड- २ कापडनिर्माण खंड- ३ रासायनिकप्रक्रिया खंड- ४ फॅशन/वस्त्र प्रावरणे खंड- ५ प्रकाशक, राज्य मराठी विकास संस्था, मुंबई.
O	B.Tech. Electrical Engineering	Absorption Scheme of 7 th & 8 th Semester of B.Tech Electrical Engineering for implementation from the academic session 2024-25 and onwards.
P	B.Tech. Electronics Engineering	Minimum passing marks for 3 rd semester (CBCS Scheme) is added for implementation from the academic session 2024-25 and onwards.
Q	B.Tech. Computer Engineering / Computer Science & Engineering / Information Technology / Computer Technology	The following 1 to 5 for implementation from the academic session 2024-25 and onwards. 1) Third semester Computer Technology Scheme of Examination: Minimum Passing Added. (Copy Enclosed) 2) 4th semester Computer Technology Syllabus Data Structure & Program Design with minor revision. (Copy Enclosed) 3) 6th semester Computer Technology Software Testing and Quality Assurance with minor revision. (Copy Enclosed) 4) 5th semester Computer Technology Artificial Intelligence Syllabus with minor revision. (Copy Enclosed) 5) CSE/CT/IT/CE Absorption Scheme Third to Eight semester. (Copy Enclosed)
R	Civil Engineering	The Scheme of Examination & Syllabus of Post Graduate Diploma Course for Valuation in Real Estate (of Architecture Course) for implementation from the academic session 2024-25 and onwards.
S	B.Tech.	The AICTE Guidelines for Working Professionals in AICTE Approved Institutions for Diploma, U.G. and P.G. Courses in Engineering & Technology with effect from the academic session 2024-25 and onwards.
2.	A	M.Com.-I CBCS Pattern as per NEP-2020 Syllabus in the subject Advanced Financial Accounting-I to be implemented from the Session 2024-2025 and onwards.
B	Commerce U.G	The basket for "Skill Enhancement Courses" for implementation of NEP 2020 compliant curriculum of all UG Programms in the Faculty of Commerce & Management.
C	B.Com. (Languages including English & Other Languages)	The Ability Enhancement Courses for B.Com. B.B.A. & B.Sc.(Finance) courses new Syllabus as per NEP-2020 of English, Marathi, Hindi and Urdu for Semester I to IV for implementation from the Session 2024-2025 and onwards.
F	M.Com.I	डॉ. मेधा कानेटकर व प्रा. मृण्मयी कानेटकर लिखित संधटनात्मक वर्तणुक (Organization Behaviour) श्री, साईनाथ प्रकाशन, नागपूर, हे पुस्तक एम. कॉम. प्रथम वर्षाकरिता सत्र २०२४-२५ पासून लागू करण्यात येत आहे.
G	Lifelong learning Diploma Courses.	विद्यापीठाच्या Lifelong learning विभागातर्फे सादर करण्यात आलेले Financial Management अभ्यासक्रमशी संबंधित Diploma Courses.

	H	M.Com.I	डॉ. मेधा कानेटकर व प्रा. मृण्मयी कानेटकर लिखित (i) संशोधन पद्धती (ii) व्यावसायिक कायदे सत्र एक करिता आणि सत्र दोन करिता (i) कंपनी कायदा (ii). भारतीय वित्तीय व्यवस्था श्री, साईनाथ प्रकाशन, नागपूर, हे पुस्तके एम. कॉम. प्रथम वर्षाकरिता सत्र २०२४-२५ पासून लागू करण्यात येत आहे.
	I	B.B.A.	ii) ज्या महाविद्यालयांना B.Com (Business Administration) असे नामांतर हवे आहे त्यांनी B.B.A च्या ऐवजी B.Com (Business Administration) अभ्यासक्रमाच्या संलग्नितेची प्रक्रिया पूर्ण करावी.
3	A	B.A. (Marathi)	Revised syllabus and Scheme of Examination B.A. in Marathi (Language & Literature) Sem.-I to Sem.-VIII as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
	B	BA	The revised syllabus and Scheme of Examination (B.A. Honors & BA Research Degree IKS Course for Psychology Major Sem. I), (B.A. Honors & BA Research Degree in Psychology as Minor Sem. II to VI.), (B.A. Honors & BA Research Degree in Psychology as Major Sem. I to VIII) and (Open Elective Courses in Psychology Sem. I to IV) as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
	C	BA (Philosophy)	The Minor Changes in syllabus B.A. in Philosophy Sem.-I to Sem.-VIII as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
	D	B.A. (History) M.A. History	i) The Minor changes in syllabus B.A. in History Sem.-III under (VSC-3 – Cultural Heritage of India, Unit – I Indian Culture Instead of, (b. Tribe, Varna and Jati, Untouchability) to be inserted as (b. Festival-Marbat, Pola, Holi, regional Folk) as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise. ii) The Minor changes in syllabus M.A. in History (Title of the paper) Sem.-II Ancient India –II (From Earliest time to 12 th century) as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
	E	B.A. (Music)	The Minor Changes in syllabus B.A. in Music Sem.-I to Sem.-VIII as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
	F	B.A. (English)	The Minor Changes in syllabus B.A. in English (Language & Literature) Sem.-I to Sem.-VIII as per NEP-2020 will come to effect from the Session 2024-2025 & onwards phasewise.
6	Academic Calendar	सत्र २०२४-२५ करिता संलग्नित/संचालित महाविद्यालयांतील व्यवसायिक व अव्यवसायिक अभ्यासक्रमाच्या विद्यार्थी प्रवेश, विद्यार्थ्यांच्या परिक्षा, हिवाळी व उन्हाळी सुट्या इत्यादी संबंधी बाबीकरिता शैक्षणिक वेळापत्रक.	
7	Master of Human Capital Management and Employee Relation	New syllabus and scheme & Exam for Semester –III & IV as per NEP-2020 with effect from the academic session 2024-25 and onwards.	
8	B.Tech Mechanical Engineering	The minor changes in the syllabus of semester 4 th and 6 th of B.Tech Mechanical Engineering for implementation from the academic session 2023-24 and onwards.	


Note:- All the concerned are requested to take a note of this notification respective changes in the Syllabus. The corrected Syllabus is available on Rashtrasant Tukadoji Maharaj Nagpur University Website (www.nagpuruniversity.ac.in)


(Dr. Raju Hiwase)
Registrar

Copy forwarded for information & necessary action to:

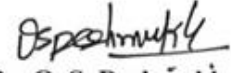
1. The all Principal of affiliated and conducted Colleges
2. Deans of all All Faculties
3. Chairman under the All Faculties
4. The Director Board of Examinations and Evaluation,
- 5 The Deputy Registrar (Pre/ Post Exams.),
6. The Asst. Registrar (Gen./Prof./ Confidential/ Exam Enq.)
7. P. A. to Hon'ble Pro-Vice Chancellor,
8. P. A. to Hon'ble Pro-Vice Chancellor,
9. P. A. to Registrar,
10. Co-ordinator, I.T.Cell, publish above document on University Website

Rashtrasantukadoji Maharaj
Nagpur University, Nagpur


(Dr. Rajendra Utkhede)
Deputy Registrar(Acad)


Dr. A. A. Halder
IQAC Coordinator
S.S.E.S.A's
Science College, Nagpur




Dr. O. S. Deshmukh
Principal
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Program Outcomes (POs) for B. Sc. Programme

PO1. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO2. Problem Solving: Solve problems from the disciplines of concern using the knowledge, skills and attitudes acquired from sciences/ mathematics/ social sciences/ humanities.

PO3. Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

PO4. Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in wide variety of settings.

PO5. Ethics: Understand multiple value systems including your own, the moral dimensions of your decisions, and accept responsibility for them.

PO6. Environment and sustainability: Understand the impact of technology and business practices in societal and environmental contexts, and sustainable development.

PO7. Self-directed and life-long learning: Demonstrate the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

PO8. Design/Development of Solutions: Design solutions for complex science problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO9. Computational Thinking: Understand data-based reasoning through translation of data into abstract concepts using computing technology-based tools.

PO10. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO11. Global Perspective: Understand the economic, social and ecological connections that link the world's nations and people.

PO12. Aesthetic Engagement: Demonstrate and master the ability to engage with the arts and draw meaning and value from artistic expression that integrates the intuitive dimensions of participation in the arts with broader social, cultural and theoretical frameworks.

Program Specific Outcomes (PSOs) and Course Outcomes (COs) for B.Sc. (Electronics) Programme

Programme Specific Outcomes (PSOs):

1. Discipline knowledge: Acquiring knowledge on basics of Electronics and ability to apply to design principles in the development of solutions for problems of varying complexity.
2. Problem Solving: Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to electronics science.
3. Design and Development of Solutions: Ability to design circuits and development of algorithmic solutions to real world problems.
4. Programming a computer/kit: Exhibiting strong skills required to program a computer for various issues and problems of day-to-day scientific applications.
5. Application Systems Knowledge: Possessing a minimum knowledge to practice existing computer application software.
6. Communication: Must have a reasonably good communication knowledge both in oral and writing.
7. Ethics on Profession, Environment and Society: Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer- based solutions for problems.
8. Lifelong Learning: Should become an independent learner. So, learn to learn ability.
9. Motivation to take up Higher Studies: Inspiration to continue educations towards advanced studies on Electronics.

B.Sc. Sem-I (Electronics - Major)

Semester – 1; Paper – 2: Digital Electronics

Course Outcomes (COs):

At the end of this course students will demonstrate the ability to

1. Understand the fundamentals of semiconductor components such as diode, BJT, FET and MOSFET.
2. Plot V-I characteristics of electronic components to observe its performance parameters.
3. Understand the simple applications of circuit made using these semiconductor components.
4. Analyse and solve circuits of electronic devices.

B.Sc. Sem-I (Electronics - Major)**Semester – 1; Paper – 1: Semiconductor Devices and Circuits****Course Outcomes (COs):**

At the end of this course students will demonstrate the ability to

1. Understand number systems conversions and apply the principles of Boolean algebra to manipulate, minimize and design logic circuits using logic gates.
2. Demonstrate knowledge of various combinational logic circuits like code converters, multiplexers, adders.
3. Demonstrate knowledge of sequential logic circuits elements like latches, flip-flops and use them in the design and analysis of counters, registers.
4. Demonstrate knowledge of design and analysis of complex combinational and simple finite state machine and similar circuits.

B.Sc. Sem-I (Electronics)**Semester – 1: VSC Basic Electronic Components and Instruments (BVS1P01)****Course Outcomes (COs):**

At the end of this course students will have ability to

1. Identify various passive and active components
2. Make series and parallel combinations of components.
3. Design various types of simple linear power supply.
4. Demonstrate knowledge and use of various instrument used in electronics lab.

B.Sc. Sem-I (Electronics)**B.Sc. SEMESTER – I BVE1T01: ENVIRONMENTAL SCIENCE****Course Outcomes (COs):**

At the end of the course, students shall be able to:

1. Explain the basics of Environmental Science and Atmospheric Science along-with the components of Environment
2. Explicate the importance of Environmental Education.
3. Elucidate the fundamentals of atmospheric science including formation, depletion and effects of ozone layer and acid rain on environment.
4. Describe the various physical and chemical characteristics and properties of Water and Soil
5. Understand the Ecology and its allied branches
6. Comprehend about Population and Community Ecology
7. Study the changes in Population by understanding the concept of Population ecology.

B.Sc. Sem-I (Electronics)
Indian Knowledge System (IKS)
SEM-1: VEDIC MATHEMATICS (BIK1T01)

Course Outcomes (COs):

This course will enable the students to

1. Improve speed and accuracy in numerical calculations.
2. Acquire IQ skills and high-end technical knowledge.
3. Gain test taking skills & creativity of calculations.

B.Sc. Sem-II (Electronics)
Semester – 2; Paper – 1: Network Analysis

Course Outcomes (COs):

At the end of this course students will demonstrate the ability to

1. Understand basics electrical circuits with nodal and mesh analysis.
2. Apply network theorems for the analysis of electrical circuits.
3. Apply Laplace Transform for steady state and transient analysis.

B.Sc. Sem-II (Electronics)
Semester – 2; Paper – 2: Programming in C

Course Outcomes (COs):

At the end of this course students will demonstrate the ability to

1. To formulate simple algorithms and translate the algorithms to programs (in C language), test and execute the programs and correct syntax and logical errors.
2. To implement conditional branching, iteration, and recursion, to decompose a problem into functions and synthesize a complete program using divide and conquer approach.
3. To use arrays to solve various matrix operation, searching, sorting and Pointers, Structures for the formulation of algorithm and Programs.

B.Sc. Sem-II (Electronics)
Semester – 2; VSC – 2: Arduino and applications (BVS2P03)

Course Outcomes (COs):

At the end of this course students will demonstrate the ability to-

1. Understand the architecture of a Arduino boards & comparison.
2. Understand the operation and interfacing with peripheral devices.
3. Implement various applications.

B.Sc. Sem-II (Electronics)
Indian Knowledge System (IKS)
SEM2: INDIAN ASTRONOMY (BIK2T0 2)

Course Outcomes (COs):

This course will enable the students to understand that

1. It is possible to create a map of the intellectual growth of a culture using astronomy as a probe.
2. The growth of Indian astronomy occurs in distinct stages analogous to phase transitions of the evolution of cultures
3. Indian Astronomy therefore provides an excellent window to the past dramatic transitions.



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