Undergraduate Programmes Manual



Guidelines and Regulations 2020

भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान भोपाल Indian Institute of Science Education and Research Bhopal

UG Manual



Guidelines and Regulations 2020

Indian Institute of Science Education and Research Bhopal

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Academic Programmes

Bachelor of Science (BS)

The Four year BS Programme is offered for bright and motivated students who have passed their 10+2 with Mathematics as one of the subjects or equivalent level exam in last two years.

BS programme consists of core courses in basic sciences and introductory courses in Economics/Engineering during the first year. A subset of all courses on offer which will enable a student to qualify for a choice of 'Major' (called pre-major courses) should be taken during the second year. The next two years are dedicated to specialization in the Major disciplines offered by their respective stream.

After spending four years in BS programme in Economic/Engineering Sciences, students have the option to obtain BS-MS (Dual Degree) in relevant Major by spending an additional year devoted to courses and research project.

BS in Engineering Sciences is offered in the following departments:

- Chemical Engineering
- Electrical Engineering and Computer Science
- Data Science and Engineering

Bachelor of Science – Master of Science [BS-MS (Dual Degree)]

The Five-year BS-MS (Dual Degree) Programme is offered, to students who have passed their 10+2 or equivalent level exam in last two years, in the following departments of the Natural Sciences Stream:

- Biological Sciences
- Chemistry

- Farth and Environmental Sciences
- Mathematics
- Physics

BS-MS (Dual Degree) programme consists of mandatory, common courses (core courses) for all disciplines during the I and II semester (1st year), a subset of all courses on offer which will enable a student to qualify for a choice of 'Major' (called pre-major courses) during the III and IV semesters (2nd year) and departmental courses (professional courses) during the remaining six semesters (3rd year onwards).

The first year of BS-MS (Dual Degree) programme consists of mandatory, common courses (core courses) from Natural and Engineering Sciences as well as interdisciplinary courses from Humanities, Social Sciences and Economic Sciences.

During the Pre-major year (Second year) students from Natural Sciences will have to mandatorily register for courses from three disciplines within their stream for a total of 20/21 credits per semester. Departments under Natural Sciences will offer mandatory courses of 6/7 credits per semester and will not impose any mandatory course(s) from other department. The maximum number of students permitted for pre-major in a department is 150. The allotment of pre-major discipline will be on the basis of CPI at the end of first year subject to fulfilling the eligibility criteria.

Third year onwards, students register for professional courses consisting of discipline dependent mandatory and elective courses for 18-22 credits per semester. During the final year, students are required to register for MS thesis with a faculty supervisor, relevant to their major discipline.

1. ADMISSION TO BS/BS-MS (DUAL DEGREE) PROGRAMMES

Admission to the BS/BS-MS (Dual Degree) programme is managed by the duly constituted Joint Admissions Committee (JAC) of the IISERs. Admission takes place once a year in July, through the following channels:

- 1. Kishore Vaigyanik Protsahan Yojana (KVPY)
- 2. IIT-Joint Entrance Examination (Advanced)
- 3. State and Central Boards Channel (SCB)

Candidates who have passed 10+2 or equivalent level exam with science stream in last two years are eligible to apply for admissions subject to fulfilling the prescribed criteria.

Indian nationals and students belonging to PIO or OCI category are eligible to apply.

The list of above channels can be modified by the empowered body from time-to-time.

Details of admission procedure may be accessed via the IISER Admission website (http://www.iiseradmission.in/)

2. FACULTY ADVISOR

On joining the Institute, every student is assigned to a Faculty Adviser (FA) for the first two year of the programme. The role of FA is of immense importance to students. The Faculty Advisers mainly

- advise the students about the rules and regulations governing the programme
- give suggestions on the courses to be taken in various semesters

Pay special attention to academically weak students

The students are expected to meet their FA at least once in a month and discuss any issues related to their progress. The parents/guardians can contact the FA for various academic issues of their wards.

3. CHANGE OF STREAM

The departments of IISER Bhopal are organised under three different streams: (1) Natural Science Stream (2) Engineering Science Stream and (3) Humanities and Social Sciences Stream.

> Natural Sciences Stream

- Biological Sciences
- Chemistry
- Earth and Environmental Sciences
- Mathematics
- Physics

> Engineering Sciences Stream

- Chemical Engineering
- Data Science and Engineering
- Electrical Engineering & Computer Science

> Humanities and Social Sciences Stream

- Economic Sciences
- Humanities and Social Sciences

Inter stream migration will be permitted only once at the end of first year of the studies. A maximum of 10% of seats sanctioned for each stream will be permitted to opt out of the stream and join other stream, subject to availability of vacant seat in the new stream. The CPI at the end of the first year will be the deciding factor for migration.

For change of stream, the students should not have 'F' grade in the any course of regular semesters of 1st year. Re-examination results will not be considered for migration. For migrating to Economic Sciences and Engineering Sciences, mathematics is mandatory at 10+2.

If migration is permitted, the student must register and clear all pending laboratory courses which will be conducted in summers following the first year of study. Students will be charged @ Rs. 5000/- per laboratory course.

Any theory course of the new stream that has been missed out must be cleared any time before the graduation, pending which degree will not be awarded.

4. ACADEMIC REQUIREMENTS

4.1 Registration in next higher academic year

A student will not be permitted to register for the next higher academic year, if any of the below mentioned clause is satisfied:

- (i) He/she has a backlog of more than 9 credits at the end of the previous year. Credits of courses with S/X grade will be exempted to register for higher class. However, he/she should earn an 'S' grade in that course before the completion of the programme.
- (ii) He/she has a CPI <5.0.

The minimum CPI clause may be relaxed for students who have passed in all the courses.

The student will have to drop a year to clear the backlog courses and acquire the CPI stipulated for registration of higher academic year.

Termination

Any student whose CPI is less than 3 any time after the end of 1st year will be terminated from the programme. Further, a student may also be terminated from his/her programme due to misconduct or other reasons as recommended by the Senate.

4.2 Year Drop and Provisions for a student on year drop

- A maximum of 2 year drops is permitted during the entire course of study.
- He/she should register for all courses with F grades (as far as possible), if offered, during the year drop.
- He/she may register for less than the minimum specific load of 12 credits per semester.
- He/she will be permitted to register for up to a maximum of 20 credits per semester for grade improvement.
- He/she will not be permitted to register for more than 21 credits in all during a semester.
- He/she will not be permitted to register for higher-level courses during the year drop.

4.3 Provisions for Overload

From 3rd year onwards, a student can register for the course(s) over and above the prescribed course structure for a particular semester. Such a course is called an Overload Course.

A maximum of one overload course will be permitted to students with a CPI \geq 8.0 and a maximum of two overload courses will be permitted to students with CPI \geq 9.0.

4.4 Repeat/Substitute/Improvement

Over and above the minimum compulsory credit requirement, a maximum of two courses will be permitted per semester under the category of repeat/substitute/improvement/overload courses.

4.5 Registration for Higher Level Courses

During the V and VI semesters (the first year into the 'Major'), students will not be permitted to register for courses at a level higher than '300'. Students in semesters VII to X (4th and 5th year) will be permitted to register for higher-level courses, upon fulfilling the pre-requisites.

5. SELECTION OF MAJOR DISCIPLINE

5.1 Major Discipline

A student will choose his/her 'Major' discipline in the respective stream by the end of the IV semester (2nd year) and will register for the same at the start of the V semester (3rd year).

However, in addition to the students admitted into the Engineering Science stream the students admitted in Natural Sciences and Economic Sciences stream are allowed to take the Data Science & Engineering premajor courses in their 2nd year. These students, who have completed the Data Science & Engineering premajor courses, are allowed to migrate to BS

programme in Engineering Sciences stream majoring in the department of Data Science & Engineering.

The maximum number of students permitted to major in a department is 50. The allotment of major discipline will be on the basis of CPI subject to fulfilling the eligibility criteria. The student may be allotted second or third choice based on the seats available and CPI scored.

5.2 Change of 'Major' Discipline

A student can change his/her 'Major' before the start of the VII semester (4th year) with prior approval of the Head of the Department to which the student wishes to migrate subject to availability of the seats, under intimation to the Head of the current 'Major' discipline. The CPI at the end of the third year will be the deciding factor for the Major Change. Also, migrations will be permitted only at the start of odd semesters. If a student chooses to change his/her 'Major', he/she should do so within the add/drop deadline. Departments may recommend imposing a year - drop to ensure that a student changing his/her 'Major' fulfils curriculum requirements.

The successful completion of all courses and other requirements, as laid down by the Department in which the student wants to 'Major', is mandatory for award of degree with that 'Major'.

6. REQUIREMENT FOR EARNING A 'MINOR'

In addition to majoring in one of the disciplines, students can also minor in another discipline by fulfilling criteria specified by individual departments. There is also a provision in the Institute to earn a 'Minor' in a discipline(s) other than the one in which she/he earns a 'Major'. Earning a 'Minor' will enable students to be better prepared for inter-disciplinary research and will potentially open up several career opportunities, which may not have been otherwise accessible. Minoring in more than one discipline is permitted subject to meeting the required criteria.

Starting from Y18 Batch, to earn a 'Minor', the student has to acquire a minimum of 18 credits in the discipline in which he/she wants to 'Minor'. may further impose additional Departments requirements to 'Minor' in their disciplines (for example, crediting certain courses from their discipline) after due approval of the Senate. The student may seek permission from the DUGC/DoAA for any additional course-load (academic overload) required to meet these criteria. The student must claim for award of 'Minor' discipline in the prescribed format, following which, the grade report of the student, in addition to the 'Major' discipline will also show the 'Minor' discipline(s), if earned.

7. MANDATORY REQUIREMENTS FOR GRADUATION

7.1 Minimum and Maximum Residence

7.1.1 For BS-MS (Dual Degree) Students

The minimum and maximum residence requirements for the BS-MS (Dual Degree) programme are 10 semesters (5 years) and 14 semesters (7 years), respectively.

7.1.2 For BS Students

The minimum and maximum residence requirements for the BS programme are 8 semesters (4 years) and 12 semesters (6 years), respectively.

Voluntary year drop(s) will also be taken into account for determining maximum residence.

7.2 Academic Requirements

A student is required to successfully complete all the courses of the curriculum prescribed for his/her programme and should obtain a minimum CPI of 5.0.

7.3 Provisions for Relaxation

The Senate may grant relaxation in the prescribed minimum/maximum residence and/or academic requirements to a student in view of the work done by him/her in the Institute or elsewhere, to the extent considered appropriate according to the merit of the case.

8. GRADUATION AND AWARD OF DEGREES

Upon the successful completion of the following requirements a student is deemed eligible for the award of the BS/BS-MS (Dual Degree)

- Has completed a minimum residency for the programme.
- Has earned a minimum of 144 (BS)/188 (BS-MS) credits in addition to all the credit requirements (core, pre-major, professional, elective and laboratory work etc.) specified by the Department, he/she is majoring in.

- Has earned a minimum CPI of 5.0 in addition to the credit requirements of the Department.
- Has no 'F' grade in all courses registered.
- Has paid all the dues to the Institute, as applicable.
- Has no case of indiscipline pending against him/her.

Upon completion of the graduation requirements and fulfilling the requirement for participation in the Convocation, the student will be awarded his/her degree during the convocation.

Procedurally, the Office of Academic Affairs, upon the completion of every semester, will compile the grades obtained by students registered for various courses. These grades and the list of students eligible for award of degrees will be placed before the Senate for its due consideration. The Senate after considering the proposal shall recommend to the BoG, for its further necessary approval, the list of candidates for award of degrees at the next Convocation of the Institute.

However, during the academic session, from time-totime, provisional degrees are issued by the DoAA. A list of provisional degrees issued to the students between two Convocations is placed for necessary consideration and ratification by the Senate/BoG prior to the Convocation of the Institute, each time, for the award of degrees.

Under exceptional circumstances, where gross violation of the graduation requirements, falsification/misrepresentation of facts pertaining to eligibility to the programme and/or any misconduct (such as tampering with the grade report/transcript) is detected at a later stage, the BoG upon the recommendation of

the Senate, may withdraw a degree that is already awarded.

9. EXIT OPTION WITH BS DEGREE FOR NATURAL SCIENCES

The Institute provides an exit option with BS Degree, at the end of 5 years from admission to the BS-MS (Dual Degree) in Natural Sciences programme to predominantly cater to academically deficient students. However, all students can exercise this option provided they meet the criteria for award of the BS degree. Students can earn a BS degree only in a 'Major' discipline. He/she will not be awarded a 'Minor'.

9.1 Minimum requirements for award of the BS (Exit) degree

Upon the successful completion of the following requirements, a student is deemed eligible for the award of the BS (Exit) degree:

- 1. Has completed a minimum residence of 5 years (and no more than 7 years) from admission to the BS-MS (Dual Degree) Programme.
- 2. Has earned a minimum of 144* credits earned from course and laboratory work.
- 3. Has registered and cleared all core courses and mandatory professional courses of his/her 'Major' discipline.
- 4. Has a minimum CPI of 5.0.
- 5. Has no F grade in all courses registered for.

^{*} minimum of 120 credits at the end of eight semester + 12 credits each during the ninth and tenth semester yielding a total of 144 credits in 5 years.

9.2 Additional Provisions

- If a student requires less than 12 credits in any semester (after the completion of 4 years) to achieve the 144 credit requirement for BS ('Major') degree, he/she may be allowed to register for less than 12 credits in a semester and still be considered a full time student.
- If student achieves the minimum requirements for award of BS degree at the end of an odd semester (after the completion of 5 years), he/she will be awarded the degree in the following convocation.

9.3 BS-MS option for the students identified as academically deficient

If an academically deficient student meets the requirements to earn BS degree latest by the end of year 6 from the time of admission to the BS-MS (Dual Degree) [i.e. minimum 144 course credits with CPI ≥ 5.0.] he/she may be allowed to register for MS Thesis to complete BS-MS in the following years (up to a maximum of the start of year 7). The student should complete all course and MS Thesis requirements specified for BS-MS (Dual Degree).

10. PRIZES AND MEDALS

10.1 Academic Excellence Award

To recognize the academic excellence of UG students across all academic programmes during the first year of study, "Academic Excellence Award" is given every semester with a certificate and prize amount of Rs. 5000/-.

10.2 CNR Rao Foundation Prize

The Institute encourages and rewards academic excellence exhibited by its students. To this end, BS-MS dual degree students of Natural Sciences stream are awarded with Professor C.N.R. Rao Education Foundation Prize, with a certificate and prize amount of Rs. 5000/- per semester, is given to the highest CPI scorer of the first year (I and II semester).

10.3 Medals

10.3.1 President's Gold Medal

This medal is awarded for the best academic performance in the graduating class amongst all disciplines of the BS-MS (Dual Degree) programme. Students with a $CPI \geq 8$ (excluding the MS Thesis credits) and no 'F' grade in any course during the entire programme can be shortlisted for this medal. Amongst the shortlisted students, the student with the highest CPI score, on completion of the programme will be awarded a President's Gold Medal. In the event of a tie, the student with the maximum number of 'O' grades will be awarded the medal. If there is a tie in 'O' grades the student with the maximum number of A grades will be awarded the medal, and so on.

10.3.2 Director's Gold Medal

This medal is awarded for outstanding all-round achievement and leadership in the graduating class amongst all disciplines of the BS-MS (Dual Degree) Programme. Students from all disciplines with $CPI \ge 8$ and no 'F' grade in any course during the entire programme will be considered for the award of this medal. These students will be ranked based on their

CPI beginning with the highest. The maximum number of shortlisted candidates, chosen by rank (beginning from the first), will be no more than 5% of the graduating class.

The Director's Gold Medal winner will be chosen by the Senate Scholarship and Prized Committee based on the following methodology. All students considered for the medal will be scored out of 100. 40% credit will be awarded based on the CPI, another 40% credit will be based on participation in student activities (co-curricular, extra-curricular and sports) as assessed by the DoSA. The remaining 20% credit will be awarded based on student activities within the Department as assessed by the Student's HoD. The student with the highest score will be awarded the medal. In the event of a tie, the student with the maximum number of 'O' grades will be awarded the medal. If there is a tie in 'O' grades the student with the maximum number of A grades will be awarded the medal, and so on.

10.3.3 Proficiency Medals

These medals are awarded for the best academic performance in each discipline of the BS-MS (Dual Degree) programme. Currently, there will be five proficiency medals one each for Biological Sciences, Chemistry, Earth and Environmental Sciences, Mathematics, and Physics (Proficiency medal for new disciplines/UG programmes will be instituted as and when the first batch of students from that batch graduates). For each discipline, students with a $CPI \ge 8$ and no 'F' grade in any course during the entire programme can be shortlisted for this medal. Amongst the shortlisted students, the student with the highest

CPI in a given discipline on completion of the programme will be awarded a proficiency medal in that discipline. In the event of a tie, the student with the maximum number of 'O' grades will be awarded the medal. If there is a tie in 'O' grades, the student with the maximum number of 'A' grades will be awarded the medal, and so on.

11. SCHOLARSHIP/FELLOWSHIP

Students eligible to receive KVPY fellowship/INSPIRE-SHE scholarship will be paid fellowships/scholarships directly by the funding agency.

At any given point of time, a student will be allowed to draw scholarship from only one source (national or international)

11.1 INSPIRE-SHE Scholarship

- 1. Eligible candidate will receive annual scholarship of Rs 60,000/-. The scholarship will be transferred to the students directly from DST-INSPIRE Office. All the SHE scholars are required to undertake research projects under an active researcher in any recognized research centres across India or abroad. The mentorship grant is given to such student as per the DST INSPIRE rule.
- 2. More details on the scholarship are available at www.inspire-dst.gov.in/ scholarship.html
- 3. Continuation of Scholarship
 - a. For continuation of INSPIRE Scholarship, the scholar shall (i) pass in all subjects and (ii)

secure minimum 7.0 CPI on a 10.0 point scale in each academic year, failing which the scholarship for the next academic year will not be paid.

- b. If a student has failed or could not attend the annual/any of the semester examination(s) in that year, the INSPIRE Scholarship for the next academic year will not be paid.
- c. The scholarship will be restored (only prospectively), if the scholar's academic performance rises above the threshold prescribed by INSPIRE.

11.2 KVPY Scholarship

- 1. The fellowship grant for KVPY students will be transferred to the students directly from KVPY Office (http://www.kvpy.iisc.ernet.in)
- Activation and Annual renewal of scholarship is entirely the responsibility of the student. The Institute will give the desired certification for submission of these forms. Scholarship will be continued in the subsequent academic year only on receipt of proof of submission of renewal form to KVPY.
- 3. The contingency grant for KVPY students will be transferred to the students directly from KVPY Office, IISc, Bengaluru. The contingency grant should be spent by the students as per KVPY rules and the Institute does not take any responsibility for meeting any type of expenses related to project/internship.

4. Continuation of Scholarship

- a. Fellowship will be continued (only prospectively) if the fellow passes all the subjects and obtains CPI of 6.0 on a 10.0 point scale (5.0 for SC/ST/PWD) in the subsequent years,
- b. Students who fail to secure this will forfeit the fellowship. However, in the subsequent year, if they get a CPI of 6.0 on a 10.0 point scale (5.0 for SC/ST/PWD), the fellowship will be renewed from that year.
- c. In addition to the above, participation and satisfactory performance in the Summer Camp in the first year and Summer project every year thereafter is required for renewal of the fellowship.

11.3 General Criteria for INSPIRE and KVPY Scholarship

- 1. Students passed by clearing back papers (reexamination) in a particular year will not be considered for scholarship.
- 2. The maximum tenure for payment of scholarship will be five years from the date of admission or completion of degree whichever is earlier.
- 3. Students who discontinue from the program and take admission again, are not eligible for the scholarship.
- 4. Director will be the Appellate Authority for redressal of any grievances in respect of scholarship and his/her decision will be final.

11.4 Utilization of Mentorship Grant

- 1. Carry over of mentorship grant until the completion of the tenure of scholarship will be as per the rules of INSPIRE or KVPY.
- 2. To carry out summer project abroad during the 4th and 5th year, the prior approval must be taken from the Director

The above rules are liable to change as per the instructions of the funding agency/Institute.

12. LEAVE FOR UNDERGRADUATE STUDENTS

12.1 Recess and Vacations

The duration of mid-semester recess and vacations is specified in the academic calendar.

12.2 Short Leave

Leave of absence during the semester is discouraged for all registered students. However, for genuine reasons, an undergraduate student may be granted leave of absence during the semester for a maximum of 7 days subject to prior approval.

12.3 Medical Leave

A student is permitted to avail medical leave during a semester for a maximum duration of 15 days upon submission of medical certificate (hand delivered through a representative or email/hardcopy) to Office of Academic Affairs. A student who remains on authorized leave of absence due to ill health is required to submit a certificate of fitness by a registered medical practitioner prior to resuming the semester. If a student has to be away for more than 15 working days even

due to medical reasons he/she may have to drop a semester.

12.4 Academic Leave

Fifth year UG student can be allowed to avail the academic leave for carrying out project/research work outside the Institute. Such leave will only be granted upon recommendation/approval by the concerned department. However, departments are advised to critically evaluate the requirements for graduation of the concerned student before recommending/approving his/her leave.

12.5 Semester Leave

A student is not normally allowed to withdraw from the academic programme temporarily and is expected to finish his/her studies without any break. However, for and/or under genuine reasons exceptional circumstances, a student may be allowed to withdraw temporarily at the discretion of Chairperson, Senate for an extended period. Such an application of temporary withdrawal be supported by must documentation and should he endorsed parents/guardians. A student who has been granted temporary withdrawal from the above provisions will be required to under the pay the token registration fees, if the application is submitted before the commencement of semester. Such leave of absence shall ordinarily not exceed two semesters with or without break during the entire period of the academic programme. During the entire duration of his/her leave, no fellowship will be awarded in any form irrespective of the CPI.

13. PROVISIONS FOR RELAXATION

The Senate may grant relaxation in the prescribed minimum/maximum residence and/or academic requirements to a student in view of the work done by him/her in the Institute or elsewhere, to the extent considered appropriate according to the merit of the case.

14. PROVISIONS FOR AMENDMENTS

- The Institute reserves the right to modify/amend/ revise any rules without prior notice.
- For special cases not covered under the specified rules, the decision of Deans/Senate will be final and binding.



शैक्षणिक कार्यालय Office of Academic Affairs

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