

Curriculum Design, Development and Deployment Policy

MSRUAS/REG/CDD/ POL/2014-15



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This Policy entitled "Curriculum Design Development and Deployment"

is applicable to all Academic Departments of MSRUAS

from the Academic Year 2014-15

(As per the SRAs of the respective Faculty)



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A. Curriculum Design Development and Deployment

A.1 Preamble

M. S. Ramaiah University of Applied Sciences (MSRUAS) focuses on student-centric professional education and motivates its staff and students to contribute significantly to the growth of technology, science, economy, and society through their imaginative, creative, and innovative pursuits. As a comprehensive University, MSRUAS caters to the multiple domains of specialty spanning from art and design to medical science with an emphasized thrust on many other attributes, apart from the normal outputs expected from a conventional academic institution.

A depiction of envisaged outputs from MSRUAS is shown in Figure 1.

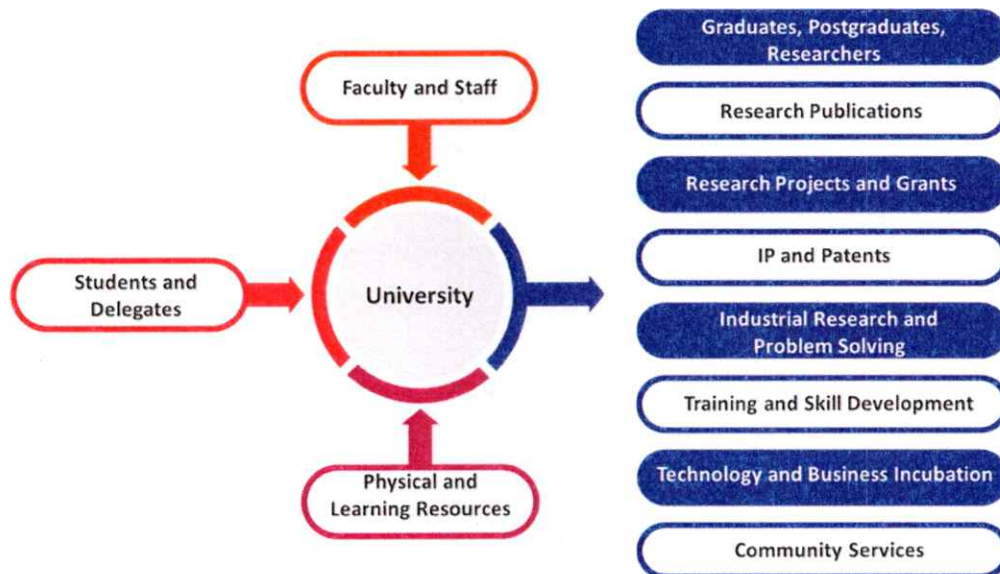


Figure 1: Envisaged Outputs of the University

As is evident from the details which are embedded in various blocks of Figure 1, MSRUAS focuses on holistic perspectives in its endeavor for academic excellence distinguishing itself from majority of other contemporary institutions. Academic institutions rely on and derive its relevance/excellence from the academic ambience prevalent in it. A pragmatic avenue for the initiation and sustenance of academic relevance is the imbibement of robust and rigorous process

in the development of academic curriculum. This becomes viable if a systematic, holistic, flexible, progressive, and inclusive framework exists, within which a sustainable policy for the **Design, Development and Deployment of Academic Curriculum (D³AC)** can be carved or formulated. Curricula design and development shall be carried out through a process which is well defined, developed and adopted. The envisaged fore-mentioned policy should resonate and reverberate with the Vision, Mission, and Objectives of the University. In addition, a Standard Operating Procedure (SOP) is necessitated to facilitate adherence to the implicit and explicit themes of the planned policy.

A.1.1 Scope

M.S. Ramaiah University of Applied Sciences was established with a clear aspiration of being a comprehensive University implying that it lays equal emphasis on multiple specialty domains. The presence of diversified academic fields of study necessitates a generic and broad-based framework under which the development of the curriculum shall be undertaken, keeping in view the stipulations of the regulatory bodies. The primary theme of this document shall be to serve as a guideline for the academic fraternity of MSRUAS. The scope of this document covers the various courses offered under the seven Faculties across two campuses.

A.2 Vision, Mission, and Objectives of MSRUAS:

A.2.1 Vision:

MSRUAS aspires to be the premier university of choice in Asia for student centric professional education and services with a strong focus on applied research whilst maintaining the highest academic and ethical standards in a creative and innovative environment.

A.2.2 Mission:

Our purpose is the creation and dissemination of knowledge.

- We are committed to creativity, innovation and excellence in our teaching and research.
- We value integrity, quality, and teamwork in all our endeavors.

- We inspire critical thinking, personal development, and a passion for lifelong learning.
- We serve the technical, scientific, and economic needs of our Society.

A.2.3 Objectives:

1. To disseminate knowledge and skills through instructions, teaching, training, seminars, workshops and symposia in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to equip students and scholars to meet the needs of industries, business and society.
2. To generate knowledge through research in Engineering and Technology, Art and Design, Management and Commerce, Health and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences to meet the challenges that arise in industry, business and society.
3. To promote health, human well-being and provide holistic healthcare.
4. To provide technical and scientific solutions to real life problems posed by industry, business and society in Engineering and Technology, Art and Design, Management and Commerce, Health, and Allied Sciences, Physical and Life Sciences, Arts, Humanities and Social Sciences
5. To instill the spirit of entrepreneurship in our youth to help create more career opportunities in society by incubating and nurturing technology product ideas and supporting technology backed business.
6. To identify and nurture leadership skills in students and help in the development of our future leaders to enrich the society we live in.
7. To develop partnership with universities, industries, businesses, research establishments, NGOs, international organizations, governmental organizations in India and abroad to enrich the experiences of faculties and students through research and developmental programmes.

A.3 Design Phase of D³AC

For a robust curricular structure development and deployment, MSRUAS shall provide a framework for curriculum development and revision throughout any program's life cycle with intensions to make student-centric regardless of the mode of delivery. Strong articulated program with clearly defined Intended learning outcomes of each course that leads to student-centered curriculum.

A.3.1 Need Assessment:

MSRUAS shall assess the specific need for commencing a new Programme or revision of Course in the existing Course. Curriculum development or revision may be required for the reasons including, but not limited to the following:

1. Revision in academic, industry, and/or community needs
2. Revision in pedagogy or instructional methodology
3. Revision needs of the students.
4. Revision in regional, national, and international needs
5. Revision recommended by the Professional bodies.

The curriculum shall recognize the diversity within the communities and contribute to the development of a respectful learning environment.

A.3.2 Indicators and Key Points of Excellence:

MSRUAS shall endeavor to fulfill the following indicators and key points for excellence.

- Process should cater to the relevance from the perspectives of the local/national/regional/global developmental needs resulting in the initiation for the commencement of a new Programme or/and introduction of a new course.
- Curricula should follow the Outcome Based Education (OBE), which helps MSRUAS to analyze, assess, and map the learning by students based on the attainment of Graduate Attributes (GA), Program Outcomes (POs) and Intended Learning Outcomes (ILOs).

Curriculum Design Development and Deployment Policy

- Major considerations in the design and development of the curriculum shall be focused on Employability, skill development, innovation and entrepreneurship, pursuit of higher knowledge (research), holistic development of students and imparting global competencies.
- Design and development of Curriculum shall be in consultation with academic experts, industry/employment sector/alumni / other stakeholders within and outside the institution.
- Curricula shall provide adequate opportunities for additional/ supplementary/ enrichment courses along with their regular curricula.
- Course delivery system and examinations processes shall be ensured to be transparent, and the curriculum be flexible for enrichment and updating.
- The process shall be systematic and be in conformity with the norms of Quality Assurance Cell (QAC), which helps to monitor the collection of a formal feedback from all stake holders, their analysis, devising actions plans to address the issues in the feedback and monitor the follow up plan for the successful implementation/revision of curricula. The feedback collection process, analysis, and action taken shall be in accordance with the Policy on Collection, Analysis, and Follow-up Action Taken on Feedback on Curriculum.
- Shall ensure that the envisaged and desired output be accomplished at the completion of Design and Development of Curriculum.
- Shall conduct periodical validation of Design and Development of new Courses.
- The identification and incorporation of the desired changes in New or Existing Courses Identification and Incorporation shall be with reference to global changes, industry scenario, stakeholders' wellbeing, and adhering to the guidelines of regulatory bodies.

A.4 Development Phase of D³AC

MSRUAS shall establish a structured system for development of D³AC, involving a wider and cohesive participation of various layers of Academic Leadership as well as Statutory bodies of MSRUAS encompassing The Deans, The Head of the Departments, Teachers of the departments concerned, Board

of Studies, Academic Council, The Board of Management and finally the Board of Governors (which is the highest policy decision body). As one would expect, the form and feature of the developed curriculum for any specialty domain shall go through regular and yet rigorous review to ensure the envisaged desirable attributes are prominent in the developed curriculum. It is a fervent hope that the cumulative impact of the pre and post phases of the curriculum development will enable the University to nurture both the student and the teaching fraternity to respond to the ever-evolving requirements of societal needs at local, regional, national, and global levels.

A.4.1 Student Centric Approach in Learning outcomes:

An overarching view based on which the origin of the need for a Programme structure can be arrived in a meaningful way through multiple levels of inputs and processes succinctly presented through a schematic described in Figure 2, which is being followed at MSRUAS. It is pertinent to state that the Learning outcomes focusing on Learner Centric and Outcome Based Education is the corner stone of Figure 2.

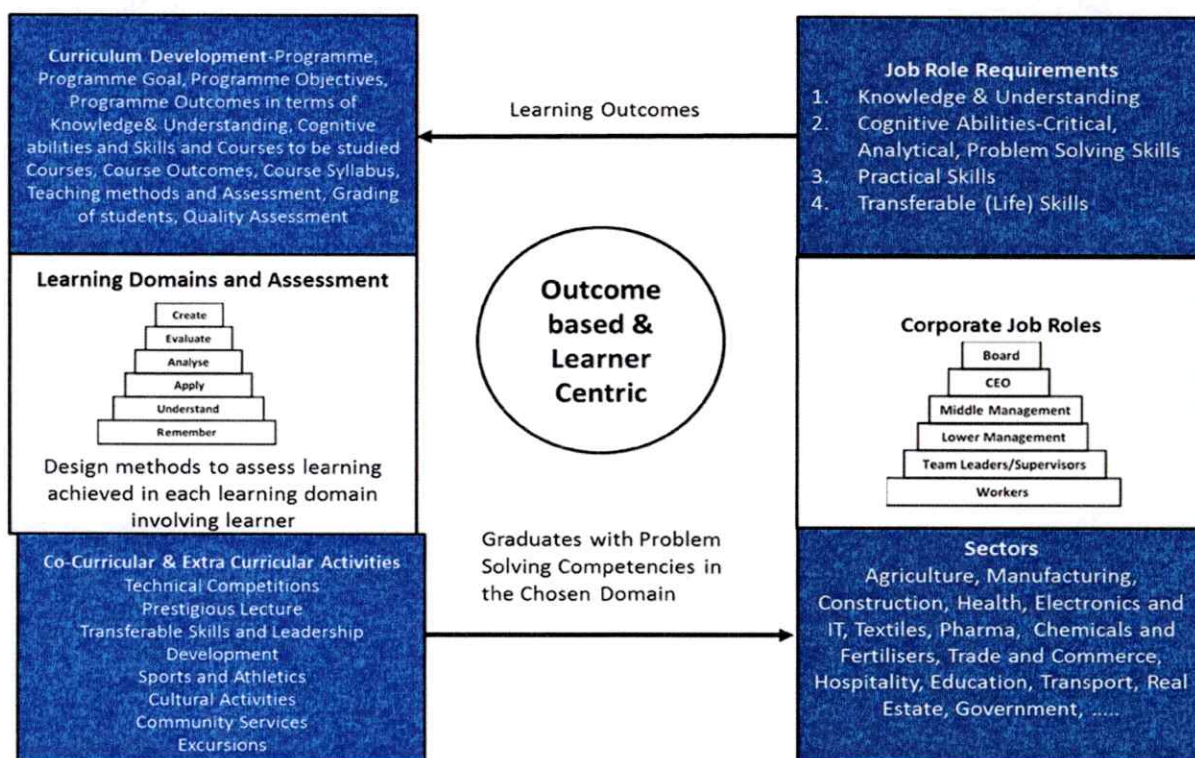


Figure 2: Learning Outcomes

As can be seen from the functional roles of various blocks of Figure 2, the curriculum development process itself has a Lifecycle starting with the identification of the various needs of society identified through the

defined or organized sectors and final culminating into the co-existence of Academic, Co-Curricular and Extra Curricular nature of the activities in a preferred/prescribed pattern.

A.4.2 Transition from University Mission to Class instructions:

A top-down approach for the translation or percolation of the Mission of MSRUAS down to the instructional aim and outcome of course level and each of its components is illustrated in Figure 3.



Figure 3: Transition from University Mission to Class Instruction

A.4.3 Bloom's Taxonomy in Learning Outcomes:

The decomposition of the learning outcomes envisaged in a Course of a Programme can broadly be categorized into higher order and lower order learning skills. The components in the above referred learning skills shall be formulated using the well accepted Blooms Taxonomy. This is illustrated in Figure 4.

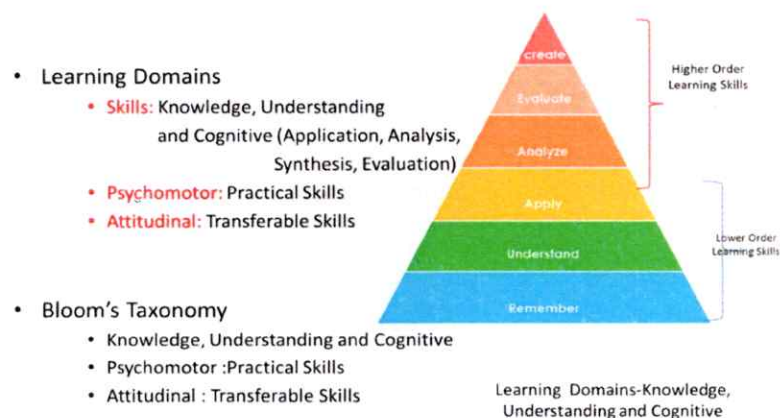


Figure 4: Bloom's Taxonomy

An alternative way of representing the preambles of Figure 3 and Figure 4 can be explained through Figure 5. The vivid description, segregation and segmentation of the process involved in the curriculum development evident in Figure 5 forms the foundational steps at MSRUAS.

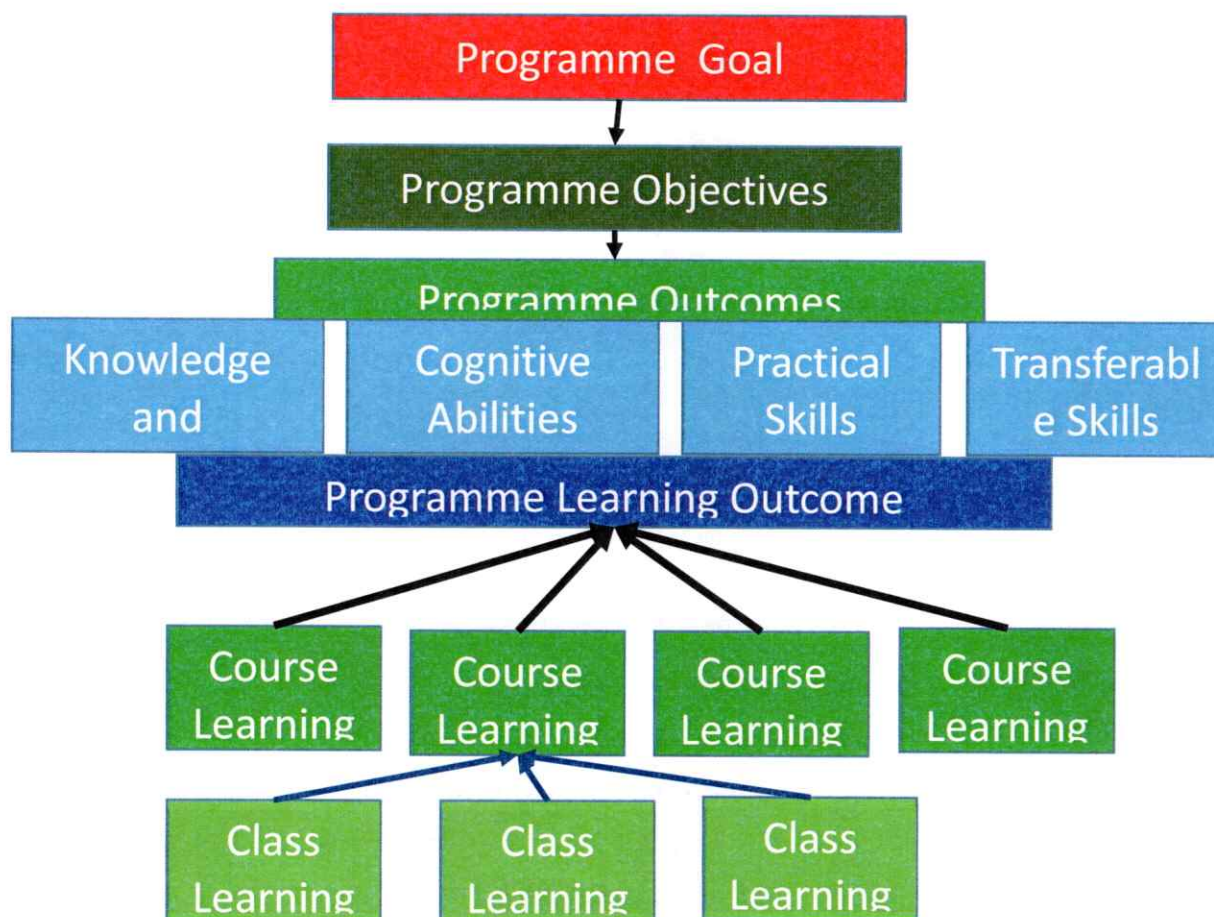


Figure 5: Curriculum Development Process

A.4.4 Approval Process for Curriculum Development:

The process followed at MSRUAS for the initiation and development of any Programme, Programmes Structure and the constituent courses is shown in Figure 6.

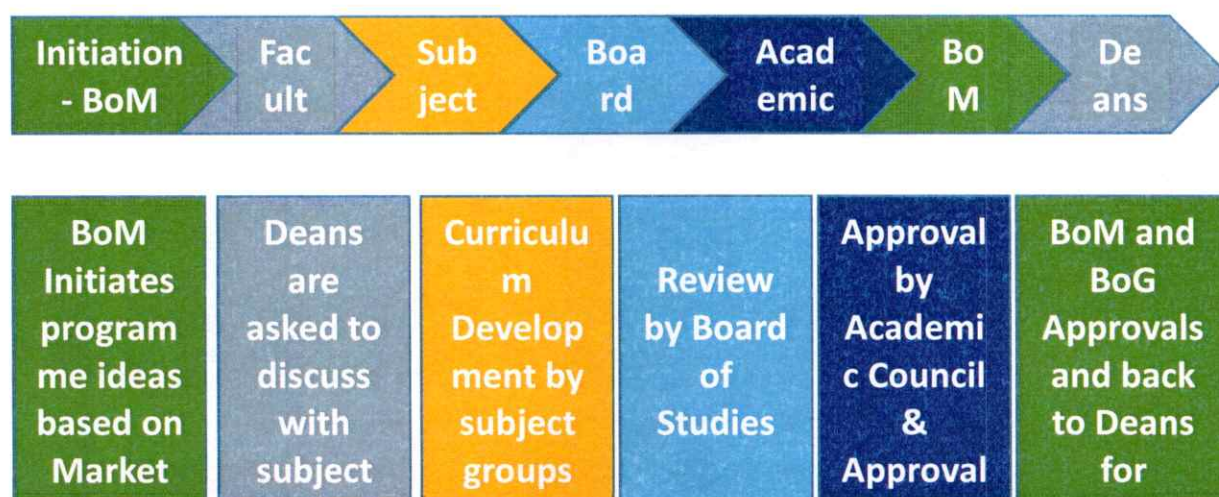


Figure 6: Approval Process for Curricular Development

As seen from the depiction of Figure 6, there is a well-structured flow for the participation of varying layers of academic leadership of MSRUAS as well as the external stakeholders such as experts from industry and academia. It also depicts the seamless and continuous flow of exchange of perspectives, advice, and feedback in an iterative fashion to arrive at the apt curriculum satisfying the needs of various stakeholders pertinent to an academic institution.

A.5 Deployment Phase of D³AC:

For the implementation or Deployment of the developed curriculum under D³AC, the following organisational structure shall be adopted as shown in Figure 7. The hierarchical approach evident and embedded in Figure 7, clearly reveals the active participative roles involving varying layers of university leadership (Vice Chancellor, Academic Registrar of the university) with a mix of oversight and deeper involvement. As indicated in the Figure 7, the activities listed under “Resources” and “Operations” will work seamlessly in unison with the active participation of the academic fraternity comprising the Deans/Associate Deans of the Faculty, Academic Registrar and various HoDs under the Faculty. The pivotal role of QAC spanning University wide is also evident.

Curriculum Design Development and Deployment Policy

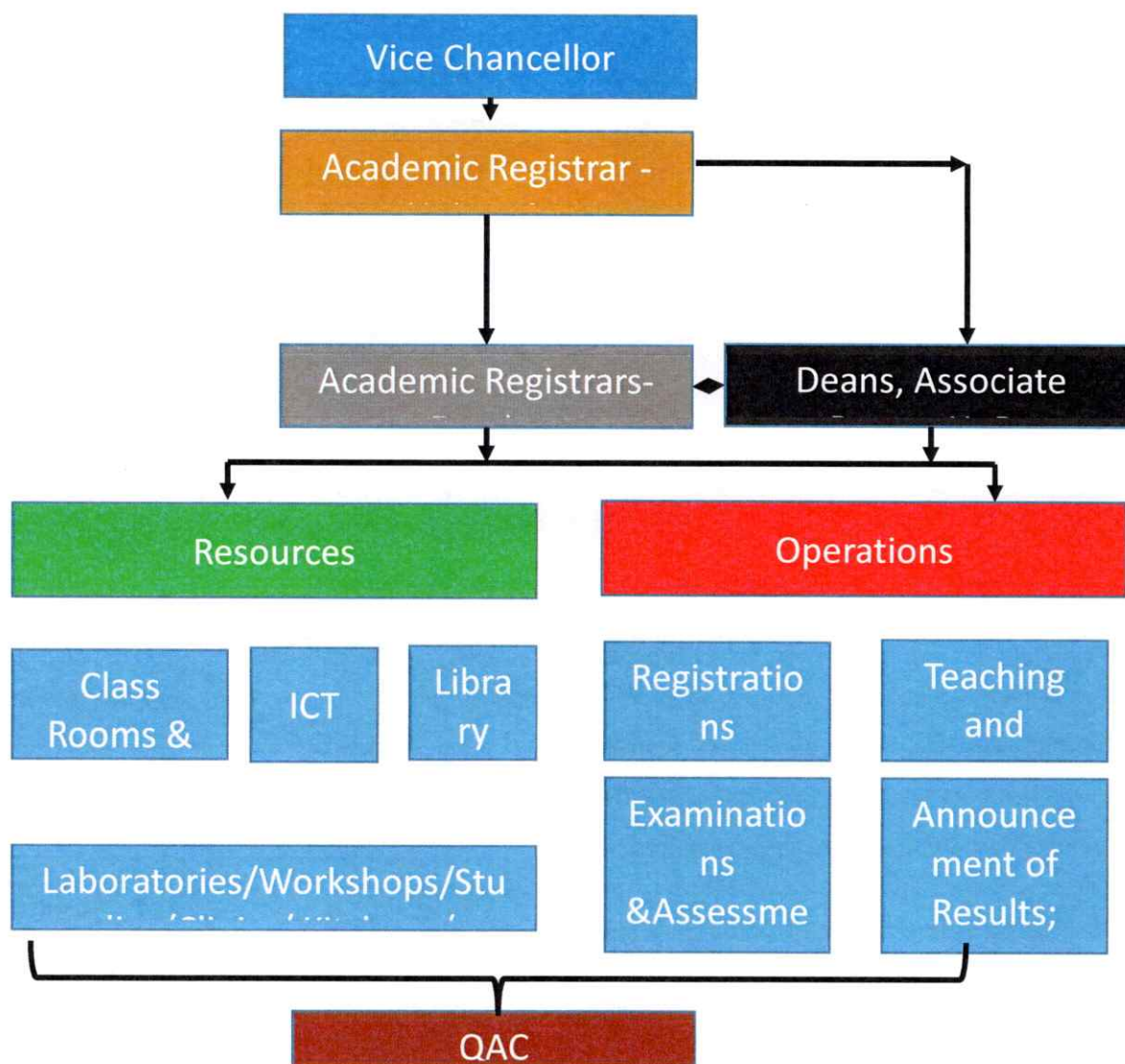


Figure 7: Deployment and Operational Hierarchy of D³AC

A.5.1 Components in Course Delivery:

The mobilization, facilitation, and utilization of the varied resources for effective delivery of the developed curriculum intended towards achievement of student centric learning outcomes shall be as presented in Figure 8.

Teaching and Learning Methods		Duration in Hours
Face to Face Lectures		
Demonstrations		
1. Demonstration using Videos		
2. Demonstration using Physical Models/Systems		
3. Demonstration on a Computer		
Numeracy or Tutorials		
1. Solving Numerical Problems		
Practical Work		
1. Subject Laboratory		
2. Computer Laboratory		
3. Engineering Workshop/Subject Workshop/Kitchen		
4. Clinical Laboratory		
5. Hospital		
6. Model Studio		
Others		
1. Case Study Presentation		
2. Guest Lecture		
3. Industry/Field Visit		
4. Brain Storming Sessions		
5. Group Discussions		
6. Discussing Possible Innovations		
Term Tests, Laboratory Examination/Written Examination, Presentations		
Total Duration in Hours		0.00

Figure 8: Components of Course Delivery

A.6 Assessment of Learning Outcomes:

The Intended learning outcomes (ILO) of each Course shall be prepared adopting the Bloom's taxonomy and covers the various levels of skills and knowledge the student will be able to demonstrate at the end of the course. The scheme of assessment to test the level of achievement in each of the ILOs or the learning outcomes shall be as shown in Figure 9.

- Assessment to test learning outcomes – Design to test outcomes
 - Knowledge and Understanding – **Term written Tests**
 - Cognitive Skills (Critical, Analytical, Problem Solving, Research Skill) – **Assignments, presentations, dissertations work**
 - Practical Skills

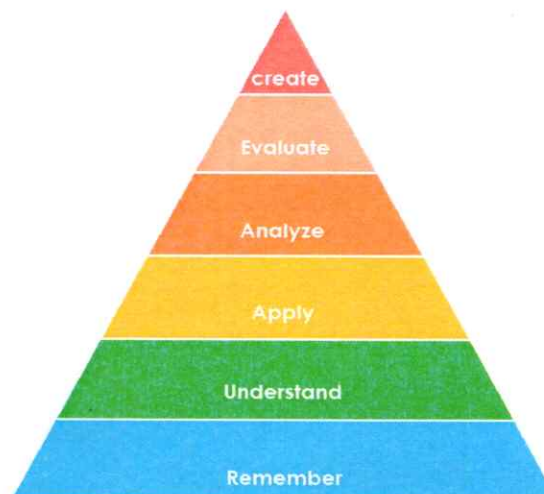


Figure 9: Assessment of Learning Outcomes

A.6.1 Components of Assessment and Evaluation

The primary theme of the development of Academic Curriculum oriented towards learner centric or student centric approach is to avoid the perception or presence of the elements of Rote Learning. In the process, it is desirable that both the student and the teacher fraternity have aprior knowledge about the nature of delivery of the intended indicative content, the division among the learning outcomes oriented towards knowledge and understanding, problem solving and critical/analytical thinking. Therefore, there is a need to bifurcate the learning outcomes to be assessed at appropriate stage of delivery. As a consequence, the phase of assessing the learning outcomes should be spaced and the spacing between the assessment should be such that it will have the objective meaning of continuous assessment. The cumulative grasp of the student about a course under consideration should lead to a comprehensive proficiency to be tested at the culmination phase of course delivery. To cater to these needs, under OBE, there are two categories of assessment, namely, continuous assessment (formative assessment) and Course end assessment (summative assessment).

MSRUAS shall insist on the course leaders to clearly specify the mode of evaluation assigning the testing of an outcome under formative assessment category or summative assessment. It is desirable that the testing of an outcome in both formative and summative assessment is avoided. A typical sample table

indicating the distribution of testing of the outcome among the formative and summative assessment is as shown below in Figure 10.

Intended Learning Outcome		1	2	3	4
Component-1	A	X	X	X	
	B				X
Component-2		X	X	X	

Figure 10: Distribution of Testing

A.6.1.1 Formative Assessment:

The general practice advocated by MSRUAS is that the nature of ILOs belonging to knowledge & understanding and solving the general nature of the problems mandated in a particular course normally be assessed in the term tests (formative assessment).

The higher order learning outcomes, which mandate the higher proportion of student participation outside the classroom premises normally, be tested in assignment (formative assessment). The learning outcomes to be tested under the above-mentioned category come under the ones requiring "Critical thinking or Analytical thinking" connected to application-oriented scenario (experiential/collaborative learning).

A.6.1.2 Summative Assessment:

This assessment of learning at the end of the course of study that does not normally require any participation or the aid outside the classroom premises is tested in the summative component of the assessment.

A.7 Role of QAC in D³AC

The significant contributions of QAC for the successful implementation of D³AC encompass the responsibilities in the form of oversight and audit covers the range of operations inclusive of the course material, assignments, test and examinations. The functioning of QAC under the supervisory role of the academic fraternity at Faculty/ HoD/Teachers, throughout the semester/academic year is also a point

worth noting. The activities in which the QAC shall participate are the following:

- Review of updated Course Curriculum,
- Review of Course/Module Notes
- Review of Assignment Questions
- Review of Question Papers of Term Tests
- Review of Module end/ Semester end/ Term or Year End Question Papers
- Collection and Analysis of Module/Semester End Feedback
- Facilitation of the conduct of Student Staff Consultative Meeting (SSCM) to review the academic delivery, assessment and other supporting activities as per the academic mandate and calendar of the University
- Assisting the university to monitor the rigour of the academic process including the SAB and PAB meetings before the formal announcement of the results

A.8 Board for Review of Academic Performance of Students:

The performance of students is reviewed and monitored as per the Academic Structure and mode of instruction of a specific Course. For The Courses which are module based, the Subject Assessment Board (SAB) meets after the completion of three consecutive modules to review the performance in all the modules delivered. Likewise, in a semester-oriented programme structure, the SAB meets at the end of each semester to review the overall performance of the students in semester. In a Course wherein academic structure is on an annual scheme, the SAB meets at the end of each academic year.

Valuation is a very crucial element in the academic processes of the University system. To ensure that the valuation process has been fair, transparent, and reliable, various actions are to be taken. An integral part of this process is the activities of the following TWO Review Boards constituted by the University, in each Faculty, to oversee the Examinations Processes for the Programs it offers. The

1. Subject Assessment Board (SAB)

2. Programme Assessment Board (PAB)

The SAB and the PAB shall be conducted in accordance with the process laid down in the Academic Regulations document and the Examination Manual.

A.8.1 The Subject Assessment Board:

The Composition of the SAB and its duties and responsibilities shall be as follows:

1. The Subject Assessment Board shall comprise the following Members:
 - a. Dean of the Faculty.
 - b. The HODs in the Faculty.
 - c. The PVC In-charge of the Faculty concerned; and
 - d. The VC or his/her authorized/nominee representative.
2. The SAB shall meet at the end of every examination (UG and PG) and review the performance of the class in each of the Subjects that have been examined.
3. After due deliberations, the SAB may suggest moderation of results, if necessary.
4. Recommend the award of grace marks as per the Grace Marks Policy of the University.
5. Based on the assessment of the class/students' performance in a course, provide feedback/suggestions to the course leader/department/Faculty for improvement of the course delivery and class performance.

The SAB objectively examines the course delivery, examination and evaluation processes to ensure that academic standards are met, based on the data compiled for the duration under consideration. After a presentation by the course leader or the HOD, the SAB reviews the standard of assessment and its comparability across all courses delivered during the duration under consideration. The suggestions and recommendations provided by the SAB on the issues pertaining to the academic delivery, assessment and the performance of the students can be an agenda for further action, which needs to be reviewed and presented in the next meeting of SAB. The academic performance of a student is confirmed by the SAB is

binding unless an error in transcription or an omission is discovered. Such deviations are recorded and presented in the subsequent SAB.

A.8.2 The Programme Assessment Board:

The PAB meets at the end of each semester/year. The mandate of PAB is to arrive at decisions on progression and awards for all students registered for the named Programmes for which the Board is responsible. In reaching a decision on progression or an award, the PAB will consider the overall performance of the student. The overall performance of the student is made up of marks scored by the student in various courses, which are already approved by the SAB.

The Composition of the PAB and its duties and responsibilities shall be as follows:

1. The PAB shall be constituted with the following Membership:
 - a. Dean of the Faculty;
 - b. The HODs in the Faculty;
 - c. The PVC In-charge of the Faculty concerned; and
 - d. The VC or his/her authorized/nominee representative.
2. The PAB shall meet at the end of every examination (after the corresponding SAB meeting) and reviews the performance of all students in a Course.
3. Recommends the students for the award of a degree or a promotion to a higher class, as applicable.
4. Recommend award of grace marks as per the Grace Marks Policy of the University.
5. Based on the assessment of the class/students' performance in a Course, provide feedback/suggestions to the course leader/department/Faculty for improvement of the course delivery and students' performance.
6. Recommend the names of the students for University awards as per the selection procedure.

The Dean and HODs shall incorporate the recommendations of the SAB and PAB appropriately and finalize

the results. The finalized results will be announced by the Academic Registrar of the University.

The decisions of the SAB and PAB in the matters of results and award of the degree shall be final and binding. The Provisional Degree Certificate is issued to eligible students who fulfill all criteria for the award of degree, only after the SAB and PAB meetings for that graduating batch.

A.9 Process for Revision in Academic Curriculum:

In tune with the rapidly evolving technological domains, societal requirements, the feedback from the various stakeholders, MSRUAS is conscious of the need to revisit, revise and reconfigure the Programme Structure in general and the Course Specifications of specific courses in particular. This tantamount to the revision in the already developed Academic Curriculum for a Programme. The flow chart for the following process of revision of Academic Curriculum is given in the flow chart below.

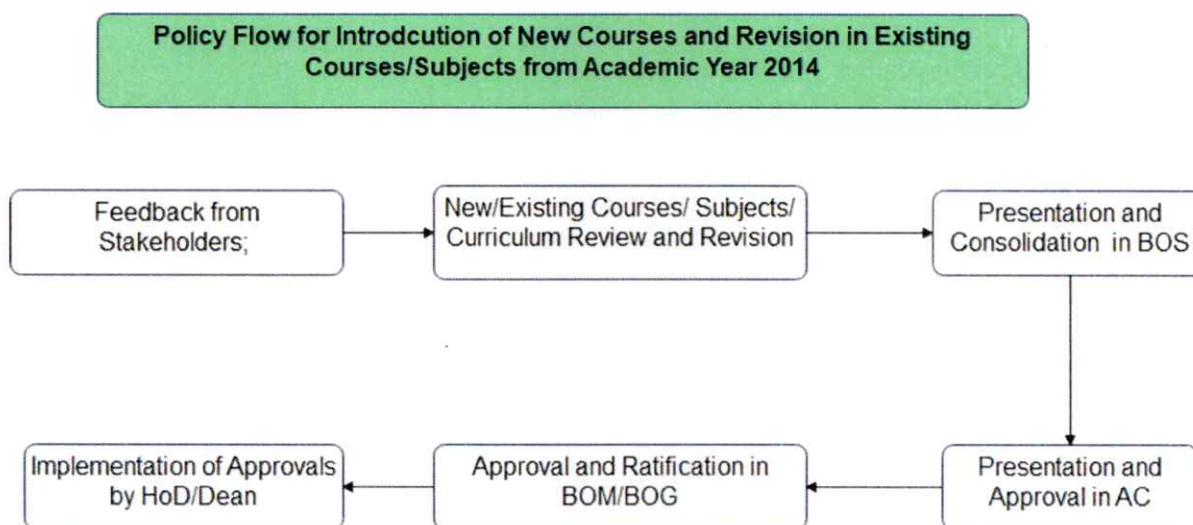


Figure 11: Process Flow for Introduction of New/Revised Courses

B. Standard Operating Procedure (SOP)**B.1 SOP for Curriculum Development of New Programme***Table 1: SOP for Curriculum Development of New Programmes*

Table 1: SOP For Curriculum Development		
S.No.	Activities	Responsibility
1.	Analysis of market demand and fixing the rationale of a Programme and preparation of feasibility report	Dean of Faculty and HODs,
2.	Constitution of Curriculum Development/ Revision Committee at Faculty level	Dean
3.	Collection of suggestions to curriculum development committee	HoD/Dean
4.	Assessment/Analysis of the existing/new Curriculum and suggestions	Dean, HoD, Faculty Members
5.	Submission of details of new course proposals/course revisions, changes in course credit, changes in elective designations, course removal, special credit courses, changes in prerequisites, changes in course title.	Dean, HoD, Faculty Members
6.	Convening BOS meeting and presenting details of curriculum	HOD
7.	Incorporating BOS suggestions into the curriculum	HOD
8.	BOS chairman to submit the corrected final version of the curriculum to Academic Council	HoD/BOS Chairman
9.	Convening Academic Council	Academic Registrar-University
10.	Preparation and submission of proceedings of curriculum accomplishing the suggestions from Academic Council for final validation & approval to BOM	HoD/Dean/ Academic Registrar - University
11.	Approval from Board of Management	Registrar
12.	Distribution of authenticated Curriculum to departments concerned and CoE	Registrar and Dean
13.	Implementation & Monitoring of the new curriculum	Dean, HoD, Academic Registrar – Faculty, QAC, Academic Registrar – University

B.2 SOP for Revision in Curriculum Development*Table 2: SOP for Revision in Curriculum*

Table 2: SOP for Revision of Curriculum		
S.No.	Activities	Responsibility
1.	Feedback from Students, Teachers, Alumni and other stakeholders. Regulatory Body requirement	Dean of Faculty and HoD
2.	Assessment/Analysis of feedback/suggestions for change in the existing curriculum	Dean, HoD, Faculty Members
3.	Submission of details of course revisions, changes in course credit, changes in elective designations, course removal, special credit courses, changes in prerequisites, changes in course title (consequent to suggestion for revision).	Dean, HoD, Faculty Members
4.	Convening BOS meeting and presenting details of revision in curriculum	HOD
5.	Incorporating BOS suggestions into the modified curriculum	HOD
6.	Submission of final version of the revised curriculum by BOS chairman to Academic Council	HoD/BOS Chairman/Dean
7.	Convening Academic Council	Academic Registrar- University
8.	Preparation and submission of proceedings of the Academic Council on revised curriculum to BOM for approval and ratification	Academic Registrar – University and Registrar
9.	Distribution of approved revised curriculum to the respective departments and CoE	Registrar and Dean
10.	Implementation and monitoring of the revised curriculum	Dean, HoD, Academic Registrar – Faculty, QAC, Academic Registrar – University