A Model to Assess and Balance Faculty Workload

Vic Cundy, Ph.D., P.E.
Head, Department of Mechanical & Industrial Engineering

David F. Gibson, Ph.D., P.E.
Dean, College of Engineering

Don Rabern, Ph.D., P.E.
Head, Department of Civil Engineering

Montana State University-Bozeman

Abstract

An assessment and planning model utilizing an Excel-based spreadsheet is presented. The model breaks individual faculty member's activities into well-defined units. An index for the individual and the department is derived which represents productivity and workload. Costs of all faculty activities including individual classes, advising, lab development, research, and others are derived. Student credit hours produced, student faculty ratios, and other metrics are also computed. The model has been useful not only as a fiscal management tool but also to assess trade-offs in the deployment of departmental resources. The fundamentals of the model are described and examples are given.

I. Introduction

The most important resource in an academic environment is human capital; that is, faculty time. In the complex mission of an engineering department where individuals generally contribute to a wide variety of activities, it is often difficult to adequately determine faculty workloads. Faculty activities generally include teaching traditional classes, advising students, conducting sponsored and non-sponsored research, committee assignments, laboratory supervision, development, outreach, maintaining industrial partnerships, student club advising, shared responsibilities with peers, and other assignments. Also, at a time when the cost of education is rising faster than most other sectors of the economy, the cost of each of these activities is important for department heads to monitor. Increasingly, governing boards and upper administrators, as well as legislators (at public institutions) and other constituents are demanding accountability for their investment in higher education. A quantitative model to help department heads and deans deal with these issues as well as to more effectively manage budgets has been developed and implemented in the College of Engineering (COE) at Montana State University-Bozeman (MSU).

II. Model Components

The model utilizes the following major components as input for data analysis:

Faculty Activities
Faculty FTE
Loading Factors
Faculty Salary
Discretionary Factors/Overrides

All activities in which a faculty member engages are integrated into the model. Faculty activities included in the model are:

Courses Taught	Laboratory Coordination
Committee Assignments	Advising (undergraduate, graduate, thesis)
Student Club Supervisor	Research Projects
Program Coordination	Internship/Coop Responsibilities
Computer Systems Administration	Departmental Administration Duties

The basic unit to which all activities are converted is credit hours. That is, each activity or assignment that a faculty member engages in, is converted into an equivalent number of class credit hours. The specific assignment of equivalent credit hours to an activity is referred to as a loading factor. An example would be that a certain number of equivalent credit hours are used as a loading factor for chairing a major committee or being the advisor of a student professional society.

The sole cost factor that is input for each faculty member is academic year salary. Another basic input is faculty FTE (full-time equivalent) that is charged to the instructional budget. For example, if an individual faculty member's academic year salary is paid 75 percent from the instructional budget and 25 percent from an externally sponsored project, the faculty FTE would be entered as 0.75 FTE. These two factors, salary and FTE, are important when the model calculates the cost allocated to each individual faculty activity.

The model also contains as input a capability to use discretion and override loading factors in special cases. An example where a discretionary override may be used would be the case of a particularly heavy laboratory assignment. It should also be noted that base loading factor adjustments are made for design classes, graduate classes, new classes, whether or not teaching assistants are utilized, and several other special circumstances.

III. How the Model Works

All faculty activity is converted to an equivalent number of academic credit hours. At MSU, a full-time academic "load" for a faculty member is 24 credits of coursework each academic year (AY) if the faculty is involved in no activity other than teaching. Once the equivalent credit workload is calculated, a workload ratio is obtained by dividing the sum of the faculty workload equivalent credits by 24. A workload ratio equal to one implies that the faculty member is carrying a full workload.

Table I shows the current algorithms used to convert various faculty activity to equivalent 'teaching' credits. The algorithms shown are those currently used in the COE at MSU. There is no implication that these conversion algorithms are absolute, nor is it the purpose of this paper to suggest this. The algorithms are shown only as one example of how faculty activity could be converted to equivalent 'teaching' credits. The development of these algorithms included a process involving college administration and faculty. Even though the model has been in use at MSU for about three years, these algorithms are periodically reviewed and updated based upon experience with the model.

Department Heads typically input initial data into the model near the beginning of the fall semester. The data is then modified throughout the year as enrollment numbers become firm, teaching assignments change, or as faculty take on new duties (committee assignments, new research contracts, etc.). One of the nicer features of the model is that changes are easily made, and the results of those changes can be immediately observed.

As previously stated, the model also performs cost calculations. The algorithms used to calculate these data are shown in Table II. All algorithms shown in Table II are considered to be costs directly related to the business of teaching, research, and service activity of the college. Note that costs associated with operations and capital equipment/computers are not accounted for in this model.

Model Output

The workload model provides the following output for each faculty member:

- AY FTE
- Individual course and total student credit hours (SCH)
- Workload Ratio
- Equivalent 'teaching' credits for each faculty activity (listed previously)
- Cost for each faculty activity (listed previously)
- Individual and total course costs
- Individual and total course cost/student
- Individual and total course cost/SCH

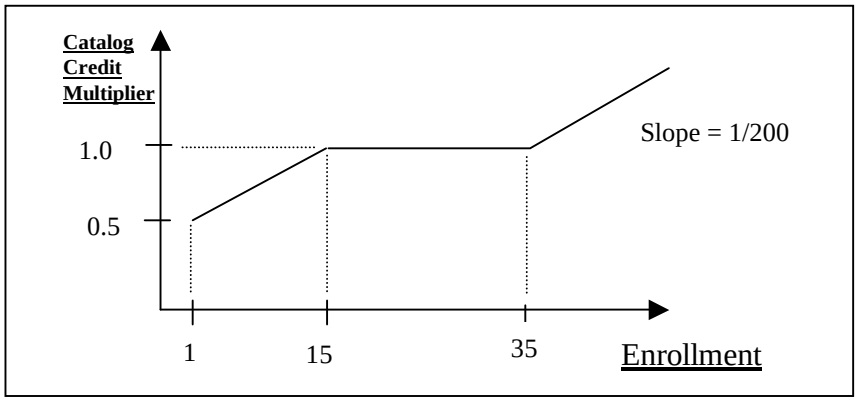
Table I. Conversion algorithms for MSU Engineering workload model.

TEACHING - Final Teaching Credits = Basis + Adjustments

Basis Calculation

Enrollment Adjust (Catalog credit adjustment based on multiplier shown in chart)

Lecture:



Lab: 1.5 x catalog credit for first section (with above enrollment adjust)

Multiple Sections	1/2 catalog credit per each additional section (lecture and lab)
Senior Design Project Supervision	1 credit maximum with standard enrollment adjustment
Overrides	Primarily used for multiple section adjustments
Thesis Supervision	No "teaching" credit given – accounted for elsewhere

Teaching Adjustments

Design Credits	0.33 x [ABET design credits/catalog credits] x Basis
Graduate Course	0.33 x Basis
New Course	0.33 x Basis
TA Assistance	-0.1 x Basis
Capstone Design Course	0.5 x Basis
Special topic course (Fr/Soph level)	0.10 x (catalog credit with no other adjustments)
Special topic course (Jr/Sr level)	0.15 x (catalog credit with no other adjustments)
Undergraduate Research Courses	0.30 x (catalog credit with no other adjustments)

University and Professional Work

Chair - Active Committee	0.5 credit/year
Member - Active Committee	0.3 credit/year
Member – Low Level Committee	0.1 credit/year

Club Supervision

Faculty Advisor – Active Club	1.5 credit/year
Faculty Advisor – Low Activity Level Club	0.5 credit/year

(continued)

Table I. Conversion algorithms for MSU Engineering workload model (continued).

Laboratory Coordination

Lab Coordinator/Supervisor	0.5 credits/year

Advising

UG Advisees	1 credit/16.25 students per year
Plan A (thesis) graduate Students	0.6 credit per student per year
Plan B (non-thesis) grad. Students	0.1 credit per student per year

Research and Creative Activity

G&C Buy Out	% FTE Buyout based on AY Appointment
G&C Cost Share	% FTE Matching based on AY Appointment
State Supplemented Activity	Low – 0.00 FTE (0 credits) Med – 0.05 FTE (1.2 credits) High – 0.10 FTE (2.4 credits)

Program Coordinators

<50 students	2 credits/year
50 to 150 students	3 credits/year
>150 students	4 credits

Internship/Coop Coordination

<30 students in program	1 credit/year
30-60 students in program	2 credits/year
60-90 students in program	3 credits/year

System Administration

<25 computers	1 credit
25-50 computers	2 credits
>50 computers	3 credits

Department Head Administration

8 + [total students/80] + [total employees/5] – Sum Program Coordination Credits

Workload Ratio = [Total Credits] / [24 x % Appointment]

Table II. Conversion algorithms for MSU Engineering cost calculations.

Course Cost

= (Course Workload Credit/Total Workload Credit) x (Instructional Salary*)

Course Cost per Student

= Course Cost / Course Enrollment

Course Cost per SCH

= Course Cost / Course SCH

G&C Match Activity

= Direct amount of G&C match

Other Costs (Committees, Advising, Sys. Admin., etc.)

= (Specific Workload Credit/Total non-G&C Workload Credit**) x (Instructional Salary*)

* Salary less G&C direct funding

** Total workload credit less credits for G&C direct and match funding

The model also provides a departmental summation of activity. Individual faculty records are brought forward and displayed, from which the following departmental data are derived. For each parameter listed below, the sum, average, and weighted average are calculated if appropriate. The weighted average is based on individual faculty FTE.

- Instructional equivalent workload credits
- Workload ratio
- SCH/FTE
- Instructional costs (faculty salary only)
- Instructional cost/student
- Instructional cost/SCH
- Cost of committee activity
- Cost of supervising student clubs
- Cost of instructional lab supervision
- Cost of advising (graduate/undergraduate students)
- Total funded grant/contract activity
- Cost of matching grant/contract activity
- Cost of underwriting unfounded grant/contract activity
- Cost of program coordinators
- Cost of coordination of internship/coop programs
- Cost of faculty coordination of departmental computers
- AY cost for department head
- Summer cost for department head

- Total costs to state supported instructional budget (only workload related)

- Total costs of all activity (only workload related)
- % of AY funded research (funded grant & contract activity / AY instructional budget)

IV. Workload Model Uses

The faculty workload model is a powerful tool that accounts for a faculty member's activities and the associated costs of those activities. When compiled for a department the data presents a composite look at the departmental activities, and when compiled from each department provides a summation of data for the entire college. The model allows administrators to look in detail at individual activities, contrasting one faculty's activities against another and assign differential teaching loads according to the entire activity space of the faculty member. At the departmental and college level the tool enables planning activities that include:

- Assessment of workload
- Balancing Department/College workloads
- Modeling future directions for the department or college
- Strategic planning
- Streamlining outside reporting requirements.

Assessment of Workload: The fundamental resource or building block of an academic institution is its faculty. This model assigns a workload giving credit for all activities assigned within the organization. This enables the department or college to compare dissimilar activities from faculty to faculty and department to department, so one might make rational choices for reallocation, future assignments, or workload adjustments. Where the model accurately reflects what faculty are doing it does not assess the quality in which they do it. No attempt is made to assign quality metrics, instead the intent of the model explores the variety of tasks and the costs associated with each of those tasks.

Balancing Department/College workloads: As data is compiled from each faculty and compiled automatically for the departments and finally the college, the workload model enables departments to compare activities across traditional departmental boundaries. The workload compilation and other measures such as cost per student credit hour, cost per course, laboratory costs and others, as mentioned above, are measures that can be used for resource allocation. With a common measure between departments, resources and load can be incrementally altered as these measures change from year to year.

Modeling future directions for the department or college: One of the more powerful features of the model is to use it to test directions the college or department is exploring for its future. Workload assessment and balancing load are activities based on current data, that include, current research activity, current student enrollments, and a given budget. The model enables departmental and college leaders to test direction, and determine the cause and effect of proposed change. As an example, if a department was considering expanding their graduate program, including a new degree option, increasing the number of sections of laboratory, creating a

maximum course size, adding or eliminating faculty positions, or determining the affect of a large grant on a department, the model can be used to look at future solutions and directions. This enables a planner to quantitatively assess the results of many optional future directions with the model. The results can indicate future workloads, needs for faculty recruitment, the affect on course size or other results. This may be the most powerful feature of the model.

Strategic Planning: Strategic planning exercises often results in tactical goals and implementation strategies. The model can assess directions and answer "what if" scenarios but it can also be used to nudge a department toward a particular direction. If the strategic goal of the college was to move toward increasing grant and contract activities while increasing the number graduate students, the model can be adjusted to reward that behavior. In this case, increasing the weighting factor for graduate supervision provides a faculty member with more equivalent course credits for advising graduate students. Where this in itself is not sufficient to, in this case, increase graduate student populations, it does consistently reward performance that takes the department or college toward a given goal. If the goal were to reduce the number of graduate students, reducing the credit for that activity would result in perhaps another course to teach and little incentive to take on additional graduate students. By adjusting factors to match the priority of activities for an organization the model can influence the direction and help the organization toward achieving prescribed direction.

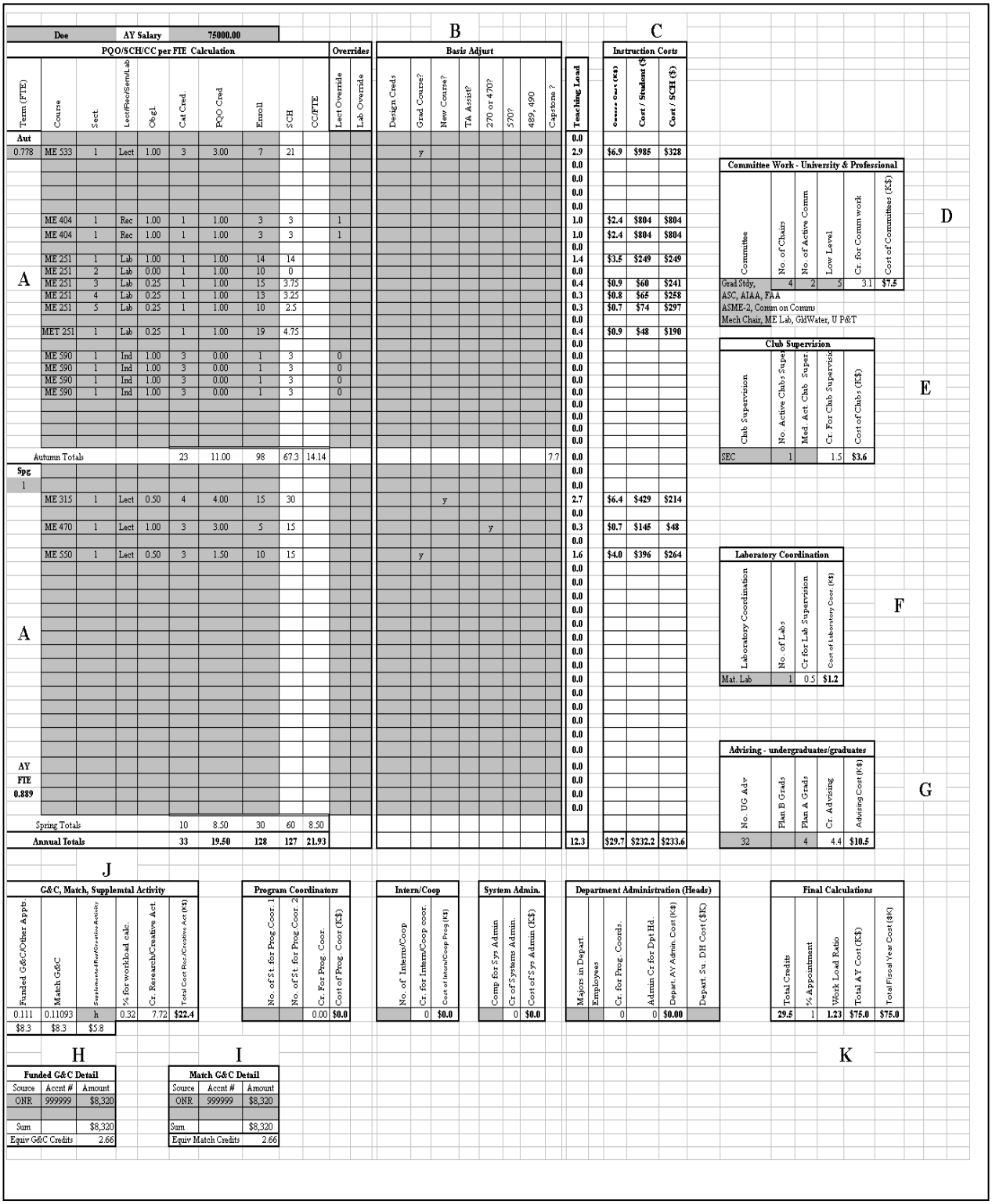
Streamlining Outside Reporting Requirements: The model requires data input to characterize faculty, departmental, or college activity. Many institutions have reporting requirements to their administration, or in the case of public institutions, board of regents or state legislatures. The workload assessment model can be customized to enable reporting requirements to be streamlined utilizing data already gathered for the model. If the sponsoring organization requires the number of contact hours of tenure track faculty with undergraduate education for instance, this can incorporated without minimal effort in the current model.

In general the uses for the model have been numerous as used within the COE at MSU. Where the model easily provides an audit over a broad range of activity, its utility and value may be as useful in determining direction, trends, and providing a tool that enables a rational method for determining the cost, and human resources needed to accomplish a direction or goal.

V. Typical Faculty Example

Consider typical faculty member, Dr. Doe, and the associated worksheet shown in Table III. In the worksheet, cells that are grayed are input cells (not password protected), and white cells are calculation cells that are password protected. This was done to prevent the user from inadvertently erasing formulas while inputting data.

Table III. Typical faculty member workload spreadsheet.



The first input to the worksheet is the faculty member's name and academic year (AY) salary at the top of the page. In the example shown, the faculty member is Dr. Doe and the salary is $75,000/AY. For the rest of the table, refer to the large bolded letters in the worksheet corresponding to each explanation provided next.

A.

These cells are where the basis for teaching is calculated. Since MSU is on a semester basis, the data is broken into two major blocks of cells, one for the autumn semester and one for the spring semester. It should be noted that the columns labeled PQO credit and CC/FTE are metrics specific to MSU and these will not be discussed. However, this points to the utility of the model in that program-specific metrics are easily inserted into the worksheets.

The instructional FTE for the faculty member is input for each semester. From that, the AY FTE is calculated.

The next input is the semester-by-semester teaching assignment for Dr. Doe. In the autumn, Dr. Doe taught the following

- ME 533 – a 3-credit graduate level course with 7 students (100% obligation)
- ME 404 – Dr. Doe supervises two capstone design groups each with 3 students (100% obligation)
- ME 251 – a 1-credit laboratory course
    - Dr. Doe teaches section 1 with 100% obligation
    - Dr. Doe team-teaches the class with another professor who teaches section 2. Therefore, Dr. Doe has 0% obligation in that section and hence, zero workload credit
    - Dr. Doe and the other team teacher supervise the remaining three sections of the lab. They are each 25% responsible for these sections, and a graduate teaching assistant is responsible for the remaining 50% obligation in each section.
- MET 251 – a 1-credit laboratory course, which is identical to ME 251. Therefore, Dr. Doe is 25% responsible for this lab (the other faculty is 25% responsible and the graduate teaching assistant is 50% responsible).

In the spring, Dr. Doe taught the following:

- ME 315 – a 4-credit course with 15 students (50% obligation as Doe team teaches with another faculty member)
- ME 470 – a special topics course with 5 students enrolled (100% obligation)
- ME 550 – a 3-credit graduate level course with 10 students enrolled (50% obligation as Doe team teaches with another faculty member)

Once this data has been input, the program calculates totals for catalog credits, enrollments, and student credit hours (SCH) for each semester, and for the entire year. Other program specific

totals are also provided. As shown at the bottom of the cell blocks **A**, Dr. Doe was involved in 21 catalog credits of coursework, teaching a total of 124 students, with a combined student credit hour generation of 115.3 SCH. Note that the SCH generation is directly related to the percent obligation of the faculty member in each course. At MSU, the data in cell blocks **A**, are the data typically reported to the administration of the university in faculty activity reports.

B.

Cell blocks B allow the user to adjust the teaching basis for items discuss earlier like design credits, level of courses, etc. In the autumn semester, the only adjustment applicable to Dr. Doe's teaching basis is that the ME 533 course is a graduate level course. The 'y' in this cell adds credit to the course according to the algorithm in Table I. Similarly in the spring semester, a 'y' is checked in the New Course cell for ME 315 as this is the first time Dr. Doe will teach this course, a 'y' is checked in the 270/470 cell as he is teaching the ME 470 as a special topics course, and ME 550 is adjusted because it is a graduate level course. All of these add to the teaching workload except for the ME 470 check, which takes the 3-catalog credit course and changes it to a 0.3-workload credit course after the adjustment for enrollment is considered.

Note also that the override cells have been checked for Dr. Doe in the two sections of ME 404. Each of these corresponds to groups of students working on their capstone design projects. Dr. Doe directly supervised these students. Although Dr. Doe is not the instructor in the ME 404 course, he is given credit for his supervisory activity associated with each student project. The override allows the user to input exactly what he/she wants for credit in the course – in effect, bypassing the calculation algorithms in the model. As can be seen, Dr. Doe receives 1 credit for each group per the recommendation of Table I.

The final column in the cell blocks **B** gives the teaching workload for the faculty member for each course. Note that the catalog credits almost never align with the credits calculated from the workload (workload credits may be more or less than catalog credits). For this particular example, Dr. Doe's teaching workload credits fall below the catalog credits for each course, and the sums are also different (21 catalog credits vs. 12.3 calculated teaching workload credits).

C.

Once the teaching workloads are calculated, it is possible to determine the cost of teaching each course. These values are derived from the algorithms presented in Table II. As one would expect, it is much more expensive to teach graduate courses than undergraduate courses (although the ME 315 course taught in the spring approaches the costs of the graduate courses). The cost for Dr. Doe's involvement in the courses shown is $29,700. On a student basis, the cost is $240/student, and on a SCH basis the cost is $258/SCH.

D.

Dr. Doe is involved with 11 committees (internally and externally). These are listed and categorized according to activeness of the committee and Dr. Doe's role on the committee (e.g. chair of the committee or member of a committee). The equivalent 'teaching' credits for Dr. Doe's work on these committees is 3.1 credits at a total cost of $7,500.

E.
Dr. Doe is the faculty advisor for one club, the Student Engineering Council (SEC). This is an active club from which Dr. Doe is credited with 1.5 equivalent 'teaching credits' costing the institution $3,600.

F.
Dr. Doe coordinates the undergraduate materials laboratory. For that he is credited with 0.5 equivalent 'teaching' credits costing the institution $1,200.

G.
Dr. Doe advises 32 undergraduate students, and he is the major professor for 4 graduate students pursuing the MS degree with thesis option. The equivalent 'teaching' credit for this activity is 4.4 credits, costing the institution $10,500.

H.
At MSU, it is possible to be relieved of teaching duties through either direct grant buyout or by matching agreements for external grants. Dr. Doe is using $8,320 from an Office of Naval research grant as direct buyout from teaching duties. This corresponds to 2.66 equivalent 'teaching' credits.

I.
Dr. Doe is also using $8,320 as an institutional commitment for match on the ONR grant. This again corresponds to 2.66 equivalent 'teaching'credits.

J.
The data from cell blocks **H** and **I** are brought forward to the cell blocks **J**. Dr. Doe is then assigned equivalent 'teaching' credits for research/creative activity that is not directly funded through external/internal means. In other words, the faculty member is assigned a rating for research/creative activity associated with unfunded work, proposal writing activity, paper preparation, guiding externally unfunded graduate students, etc. Dr. Doe's efforts are considered to be high. Therefore, Dr. Doe receives an additional 2.4 equivalent 'teaching' credits for these efforts. The sum of Dr. Doe's funded grant activity, the match associated with grant activity, and the activity associated with unfunded research/creative activity is then calculated. These cell blocks show that he is credited for an additional 7.7 credits of equivalent 'teaching' credits. Note that this sum includes data from cells **H**(2.66 credits) and **I**(2.66 credits) and **J**(2.4 credits).

K.
Since Dr. Doe is not involved in program coordination, internship/coop activity, computer system administration, or departmental administration, the summary of his workload activity is then presented in cell blocks **K**. Here, the total equivalent 'teaching' credits are calculated to be

29.5. Since Dr. Doe is 1.0 FTE faculty member, the workload ratio is obtained by simply dividing by 24 (see Table I). Dr. Doe's workload ratio is 1.23, which may be interpreted to mean that Dr. Doe is exceeding the workload required by the MSU's COE.

VI. Typical Department Summary Example

Once the individual faculty workloads are calculated, the program automatically rolls up data for the department. An example of a departmental summary is shown in Table IV. The department roll-up shown in this table is an MS Excel worksheet that links to all of faculty worksheets within a department. When changes are made on the faculty sheets, they are automatically updated on the department sheet.

Shown on the bottom of the departmental worksheet are three rows which summarize the departmental activity: the sum of various parameters (where appropriate), the average of various parameters (where appropriate), and the weighted average based usually on FTE (where appropriate).

Table IV. Typical departmental summary sheet.

Department XX 99/00											CE Cost Summary 99/00																	
Faculty Name	Inactive ?	Remove or/fte??	Instructional FTE	Catalog Credit	PQO Credit	Enrollment	Student Credit Hours	PQO Class Credit/FTE	Instructional Workload	Total Workload	Instructional Cost (K$)	Cost/Student($)	Cost per Student Credit Hr.($)	Committee Cost (K$)	Club Cost (K$)	Lab Cost (K$)	Advising Cost	Funded G&C (K$)	Match G&C (K$)	Supplemented Res/Creative Activity (K$)	Total Res/Creat/Other (K$)	Program Coor (K$)	Internship/Coop Cost (K$)	Sys. Admin Cost (K$)	DH AY Admin Cost (K$)	DH Su Cost ($K)	Total AY Instructional Budget ($K)	Total AY Cost (K$)
Faculty A			0.84	15	14	112	336	16.8	15.4	1.0	49.5	442.3	147.4	3.2	0.0	0.0	6.1	12.6	0.0	7.7	20.3	0.0	0.0	0.0	0.0	0.0	66.5	79.2
Faculty B			0.63	11	11	160	257	17.5	12.7	1.3	21.1	131.6	82.1	2.1	1.2	1.7	6.5	21.5	0.0	4.0	25.5	0.0	0.0	0.0	0.0	0.0	36.6	58.1
Faculty C			0.40	5	5	39	109	12.5	5.0	1.2	8.4	215.8	77.2	2.5	0.0	0.8	7.6	35.2	0.0	4.0	39.2	0.0	0.0	0.0	0.0	0.0	23.4	58.6
Faculty D			0.00	7	7	98	174	NA	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.0	0.0	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	54.0
Faculty E			1.00	18	18	288	736	18.0	17.0	1.1	43.0	149.4	58.5	2.5	0.0	2.5	6.4	0.0	0.0	6.1	6.1	0.0	0.0	7.6	0.0	0.0	68.1	68.1
Faculty F			0.40	9	9	33	99	22.5	9.1	1.2	18.9	573.9	191.3	1.9	0.0	0.0	7.5	46.3	0.0	2.5	48.8	0.0	0.0	0.0	0.0	0.0	30.8	77.1
Faculty G			0.00	2	2	31	62	NA	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Faculty H			0.93	15	16	146	378	17.1	15.9	1.1	36.8	252.3	97.4	3.9	1.2	1.2	8.6	4.1	0.0	5.5	9.7	0.0	0.0	0.0	0.0	0.0	57.2	61.3
Faculty I			1.00	15	18	402	618	18.0	22.1	1.3	38.7	96.1	62.5	1.2	0.9	0.0	4.8	0.0	0.0	2.1	2.1	0.0	5.2	0.0	0.0	0.0	52.9	52.9
Faculty J			1.00	21	19	366	805	19.2	21.1	1.1	65.8	179.7	81.7	2.5	0.0	0.0	6.7	0.0	0.0	3.7	3.7	0.0	0.0	0.0	0.0	0.0	78.7	78.7
Faculty K			0.40	6	6	29	58	15.0	6.5	1.1	17.5	603.7	301.9	1.1	0.0	0.0	6.5	47.4	0.0	6.5	53.9	0.0	0.0	0.0	0.0	0.0	31.6	79.0
Faculty L			0.80	15	15	217	651	18.8	15.0	1.1	32.7	150.9	50.3	2.2	0.0	0.0	4.2	11.9	5.8	2.6	20.3	0.0	0.0	0.0	0.0	0.0	47.5	59.4
Faculty M			0.33	6	6	27	81	18.0	5.8	1.2	9.2	342.1	114.0	1.0	0.0	0.8	5.7	41.0	0.0	3.8	44.8	0.0	0.0	0.0	0.0	0.0	20.5	61.4
Faculty N			0.75	14	4	127	67	5.3	5.4	1.4	17.1	134.4	254.7	6.0	0.0	0.0	6.9	0.0	0.0	7.6	7.6	0.0	0.0	0.0	66.8	17.5	104.4	104.4
Faculty O			0.63	8	8	146	342	12.7	9.9	1.2	20.4	139.5	59.6	1.2	1.5	2.1	11.1	22.8	0.0	2.5	25.2	0.0	0.0	0.0	0.0	0.0	38.8	61.5
Faculty P			0.89	15	12	176	428	13.5	13.4	1.1	32.8	186.5	76.7	4.2	0.0	3.7	9.9	7.1	0.0	5.9	13.0	0.0	0.0	0.0	0.0	0.0	56.4	63.5
Faculty Q			0.93	16	16	193	375	17.2	17.6	1.0	51.4	266.3	137.0	2.6	0.0	0.0	6.7	4.8	0.0	3.5	8.3	0.0	0.0	0.0	0.0	0.0	64.2	69.0
Sum			**10.9**	**198.0**	**186.3**	**2590.0**	**5575.7**			**19.9**	**463.4**	**3864.5**	**1792.3**	**38.2**	**4.8**	**12.7**	**105.1**	**336.6**	**5.8**	**68.0**	**410.4**	**0.0**	**5.2**	**7.6**	**66.8**	**17.5**	**777.6**	**1114.2**
Average			**0.6**	**11.6**	**11.0**	**152.4**	**328.0**	**17.0**	**11.3**	**1.17**	**27.3**	**227.3**	**105.4**	**2.2**	**0.3**	**0.7**	**6.2**		**0.3**	**4.0**							**45.7**	**65.5**
Weighted Avg.				**14.0**	**13.2**	**195.1**	**421.1**		**14.3**		**35.3**	**229.5**	**109.7**	**2.7**	**0.3**	**0.9**	**7.0**		**0.4**	**4.6**								
																						AY % Funded Res.					43.3	

For this example, the average workload ratio for this department is 1.17, the weighted average instructional credit is 14.3 (that is, the weighted average instructional load for each faculty in this department is 14.3 credits), and the weighted average SCH for each faculty is approximately 421. A total of 2590 students were enrolled in courses taught by the faculty in this department during this academic year. Note this is not student head count or student FTE enrollment; rather, it is the total of the enrollment in all classes the faculty in this department taught during the academic year.

In terms of cost data, the weighted average cost per student in the department is approximately $230 and the weighted average cost per SCH is approximately $110. The total cost for committee work is $38,200, for club supervision $4,800, and advising costs are $105,000 (including undergraduate and graduate students). This department had $337,000 worth of funded grant and contract activity and it was matching this activity with $5,800. The department subsidized unfunded research/creative activity with $410,400 of institutional funds.

Other data is available from this worksheet that can be tailored for specific needs. The data we found particularly useful at MSU is grayed in the table.

VII. Conclusions

The College of Engineering at Montana State University has had three years of experience with the model with incremental improvement over that time. It has been tremendously useful in assessing relative workloads between departments, reallocating resources, and determining differential teaching loads for faculty. The model has been well accepted within the college by faculty, department heads, and the Dean's office. Initially, concern was voiced over the prospects of tying the workload model to performance measures. We have resisted this temptation and have concentrated on using the tool to look at all of the tasks performed in the college and the respective costs and time commitments associated with these tasks. We believe faculty performance needs to consider the difficultness, quality, and efficiency of tasks performed, which is not the intent of the workload model. In general, the college knows a great deal more about the breadth of our commitments and the costs of doing the entire mission than we did earlier. The workload model has been the primary tool in this assessment.

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VIC A. CUNDY, PHD, PE
Vic Cundy is currently the Department Head of Mechanical & Industrial Engineering at Montana State University-Bozeman. He has had academic appointments at Louisiana State University. Cundy's BSME, MSME, and PhD are from the University of Wyoming.

DAVID F. GIBSON, PHD,PE
David F. Gibson is Professor and Dean Emeritus at Montana State University-Bozeman. He received his BS, MS, and PhD degrees in Industrial Engineering from Purdue University. He joined the faculty of MSU in 1969 and served as Dean of the College of Engineering from 1983 to 2001.

DON RABERN, PHD, PE
Don Rabern is currently the Department Head of Civil Engineering at Montana State University-Bozeman. He received his BS degree in Civil Engineering from the University of Utah and MS and PhD degrees from the University of Arizona in Engineering Mechanics.